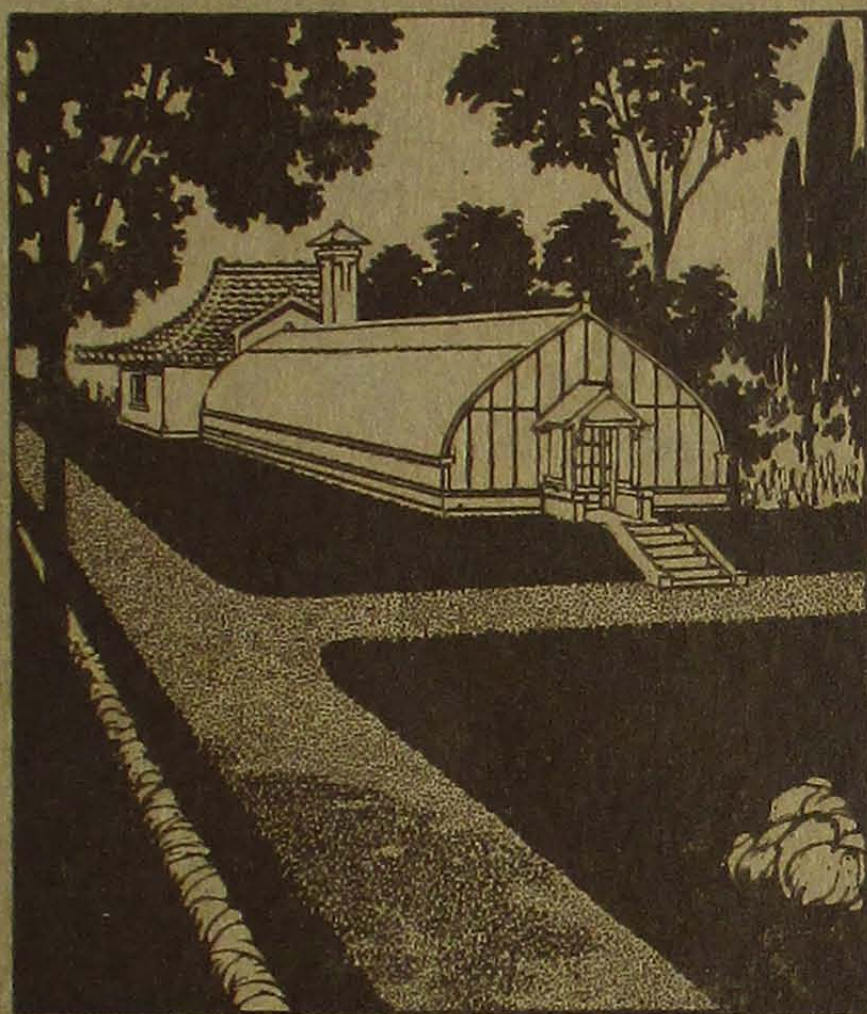


SOME GREENHOUSES WE HAVE BUILT



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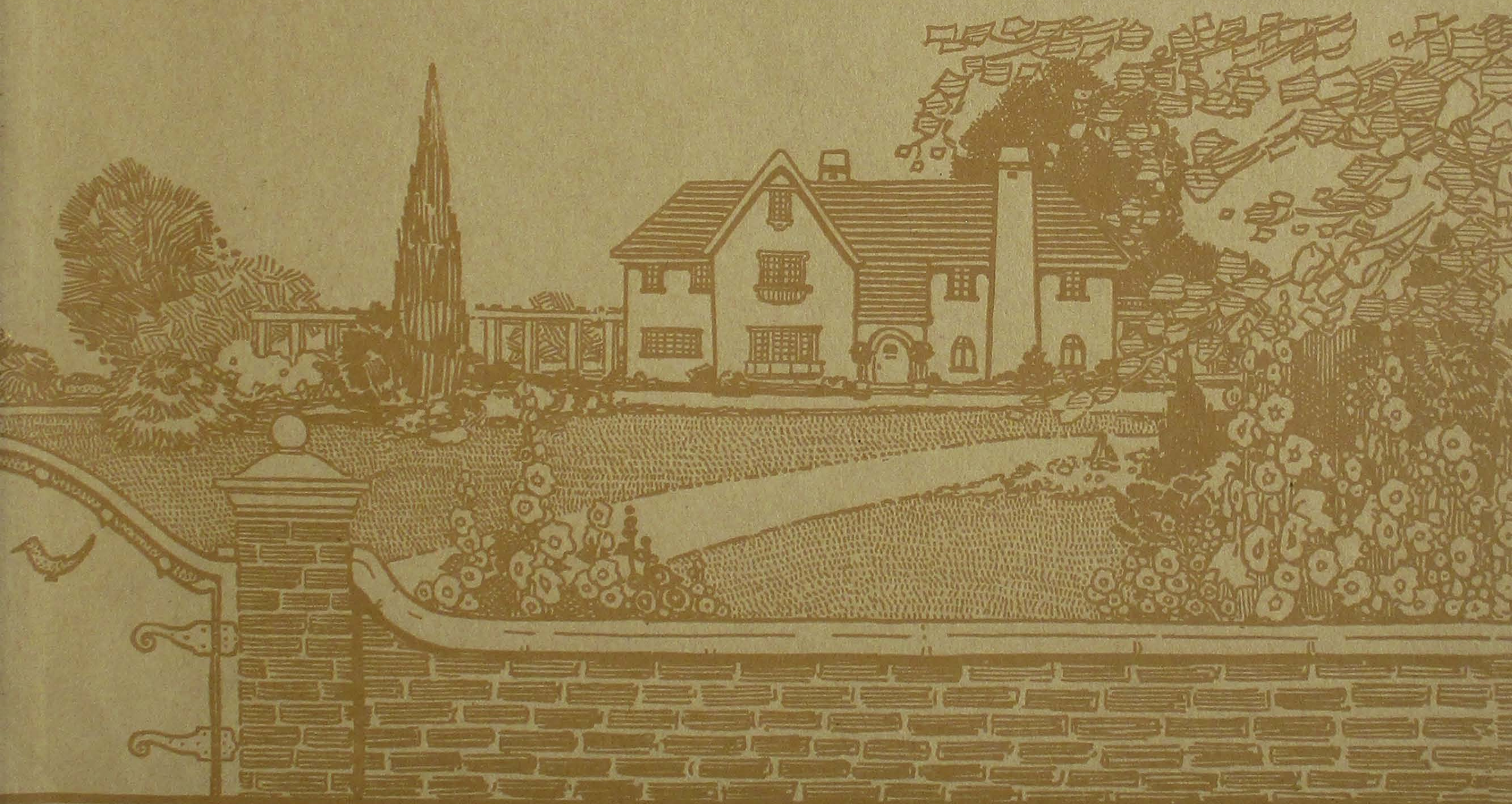
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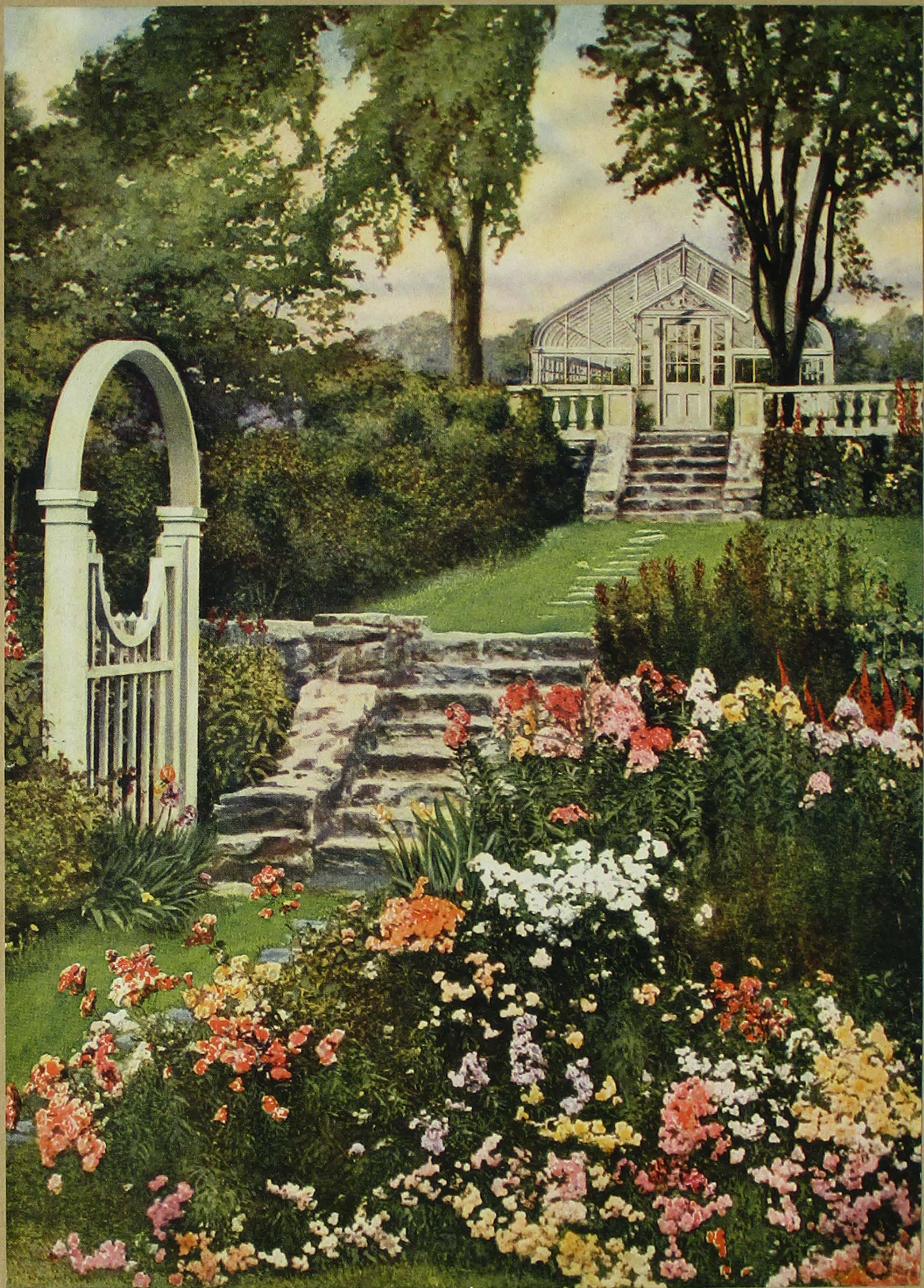


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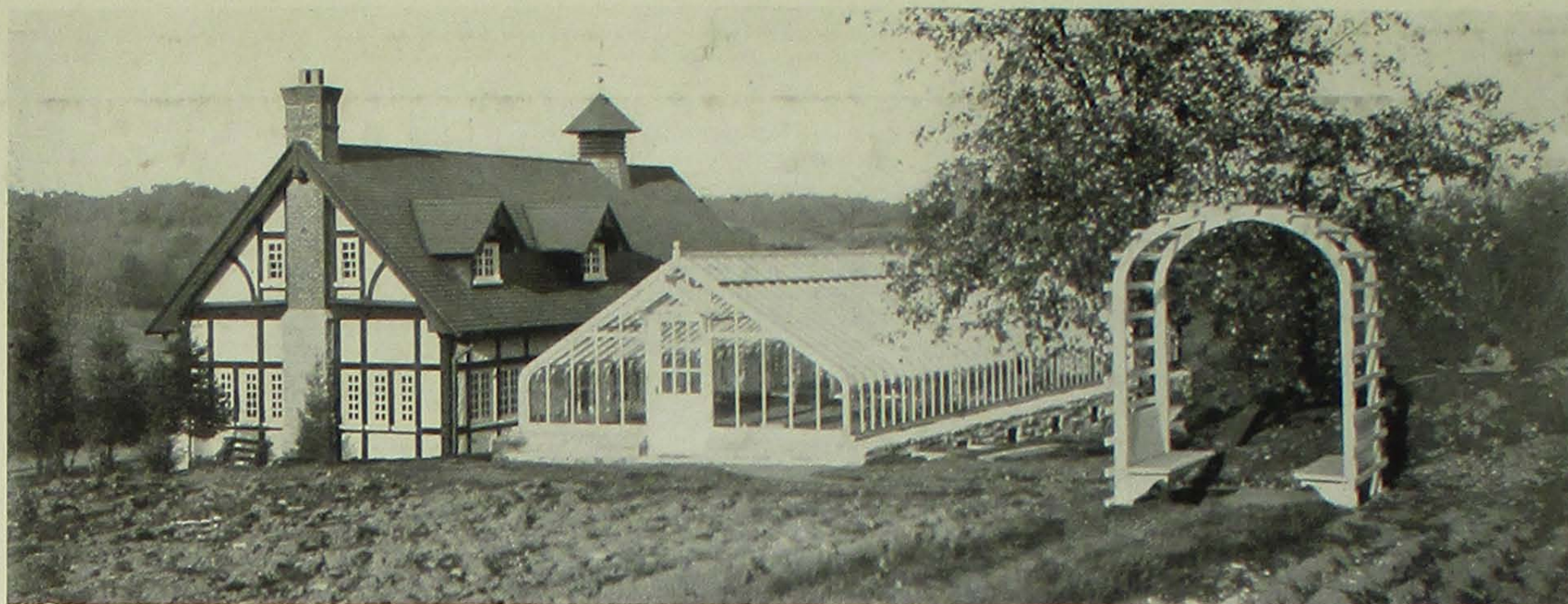
MONTREAL
Transportation Building

FACTORIES :

IRVINGTON, N. Y.

DES PLAINES, ILL.

ST. CATHARINES, CANADA



It was our privilege to erect this greenhouse for Mr. F. R. Diston, on his grounds at St. Davids, Pa.

Some Here and Now Facts Worth Considering

IF YOU don't happen to know that our method of greenhouse building guarantees to you a freedom from the usual annoyances and cares attendant on building operations in general, we have a very agreeable surprise in store for you.

If you desire, we will contract to do every part of the work of building and equipping your house, from the turning of the first shovel of dirt for the foundation, to the turning on of the heat ready for your plants.

This puts the responsibility for the entire work entirely on our shoulders. Shoulders that have been successfully doing just this sort of thing for over three score years.

The actual erection of the greenhouse itself, after the foundations are ready, will be carried on with a rapidity that can but surprise you.

This unusual speed is made possible by the practically complete preparation of all materials at our factory. They come to your grounds all cut, fitted and ready for immediate assembling. One coat of paint is even given them at the factory before shipment.

All the usual cutting and fitting, shifting and adjusting, is overcome. Your house goes together like clock work.

If you have a dread of the general upheavals and exasperating occurrences you may have pictured in your mind, as incidental to the usual greenhouse building, you can promptly dispel them, and look upon it all as, indeed, a pleasurable matter.

SELECTING YOUR HOUSE

Even the selecting of the house best suited to your particular requirements, can well be a satisfaction.

With the various subjects in this catalog to choose from, you may be able to select one that will just fit into your needs and purposes. Or if you will let us know briefly what you have in mind, we can promptly suggest one.

Unless you are considering a simple, straight away house, located so that the sun can reach every part of the house all day, we believe it will be greatly to your advantage to have one of us call, where distance permits, and go carefully into every point. Then, if necessary, we can recommend a house that will best meet all your requirements.

This is a service which we are glad to offer our customers without charge. By availing yourself of it, we can, doubtless, save you from many disappointments, and secure to you a house that will most attractively fit into its location; while at the same time, can be run with greatest economy.

Very naturally, we can turn out in a shorter time any of the houses which we have already built, and are shown in this catalog. All the plans and working drawings being on file at any of our three factories, it is a very simple matter to put the work at once through the processes of manufacturing.

COST OF HOUSES

You will notice that there are no prices given for any of the houses. They are omitted for two reasons. Very naturally, there are some who prefer not to have their expenditures heralded abroad. So we question our right to tell you exactly what any one house costs; any more than we would feel at liberty to tell what yours did, should you favor us with an order.

Then the second reason is: because so much depends on the cost of masonry work in any particular location; the distance of the site from our factory, and numerous other variant facts that are bound to greatly influence the prices; the actual cost as a result differs greatly.

APPROXIMATE PRICE

On the other hand, however, we are always glad to give an approximate estimate of what a greenhouse costs, based on available information and average conditions.

72898
28845

HOW CONSTRUCTED

So thoroughly are our houses designed and constructed; so carefully are they erected; and of such superior materials have they always been made, that one of our customers in going through his quarter of a century old house and looking at its splendid condition, remarked: "Lord and Burnham build greenhouses enduringly well; so well, in fact, that they should be called *Houses of Everlasting Lastingness*."

This statement so thoroughly embodies the results of our sixty years and more of greenhouse building, that it seems rather needless to dwell part by part on their excellence.

The fact that we have been building greenhouses for over three score years, gives us an experience not enjoyed by others.

CONCLUSIVE EVIDENCE

Quite as conclusive evidence of the high standard of our work as we could possibly present to you, is this catalog collection of houses we have erected for prominent people in widely separated parts of this Country and Canada, Europe and other foreign countries.

PERSONAL INVESTIGATION

Those things which we have done for others, are the most conclusive evidence of what we can do and will do

for you. With this in mind, we will gladly give you the names of owners of houses in your vicinity, and arrange for the privilege of your visiting them. One of us may be able to go with you; in which case, we would hasten to claim the privilege of your being our guest. The distinct convincing advantages to you of such visits, you can well understand.

FURTHER FACTS

If there are any additional facts which you wish to know, we sincerely hope you will feel free to seek them from us.

SALES OFFICES

You will notice on the Title Page, the list of our Sales Offices. In writing to us, would suggest your directing your letter to the office nearest. It will result in the promptest service.

ADVANTAGE OF 3 FACTORIES

Having three factories in different parts of the Country, we can ship the materials from the one obtaining the lowest freight rate; and in this way give you the advantage of a very considerable saving not possible with the one factory concerns.

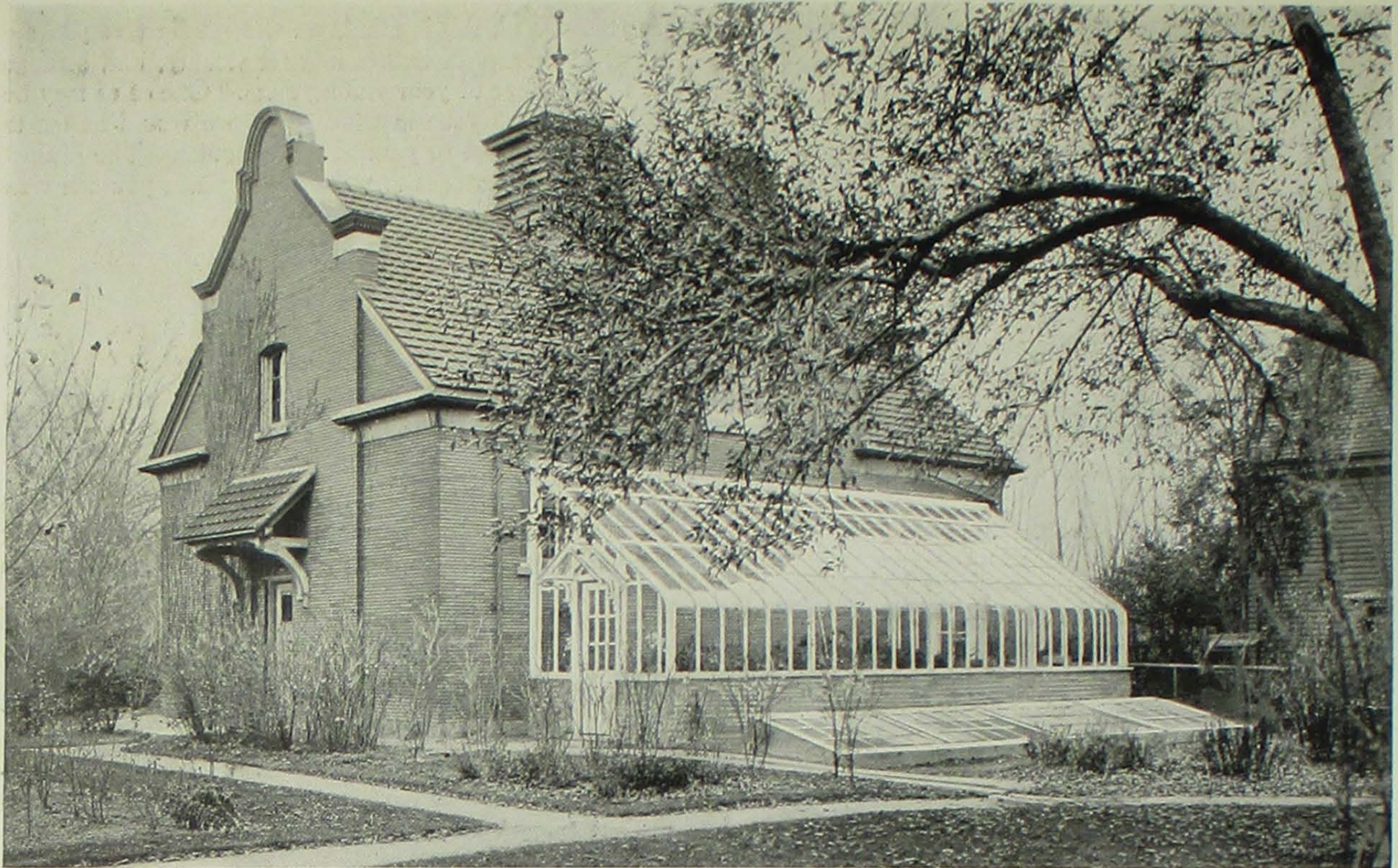


On the beautiful estate of Larz Anderson, at Brookline, Mass., there is an extensive group of houses for flowers, vegetables and fruit. This is a glimpse of two of the houses near "the big gate" as it is called.

371296

ART DEPARTMENT

Lord & Burnham



Number 500—This brick garage with its two compartment Leanto greenhouse, and row of frames, on the sunny Southern exposure, is on the grounds of Mr. H. A. Strong, Rochester, N. Y.

The Half Span or Leanto

Number 500

IT'S called Half Span, because it has just half the roof span of the full span house.

It's also called Leanto, because it is generally built leanto fashion against an existing building or wall.

Unless you want to grow ferns, orchids and such shade loving plants, it should be located with the roof facing the South. For attaching to a garage, as in this case, it is particularly good. The boiler in one, can then furnish heat for both, to the economy of both.

This one shown is about 11 feet wide and 25 long. It gives you ample room for two benches and a plenty wide walk.

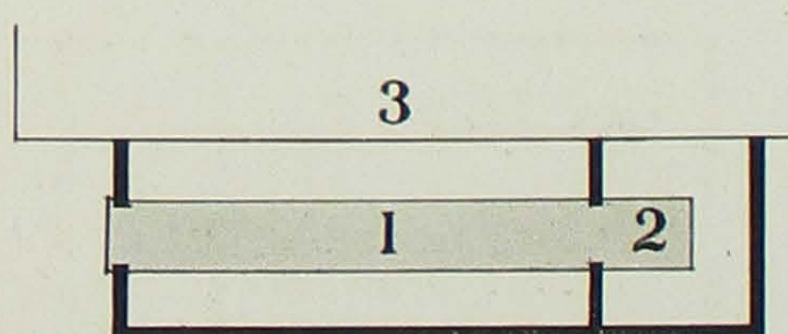
You notice from the plan, that it is divided in compartments 1 and 2.

This makes a good arrangement, as in number one. you could grow a general assortment of plants thriving in a temperature of say 60 degrees. Then in the other, perhaps, violets that do well as low as 45 degrees.

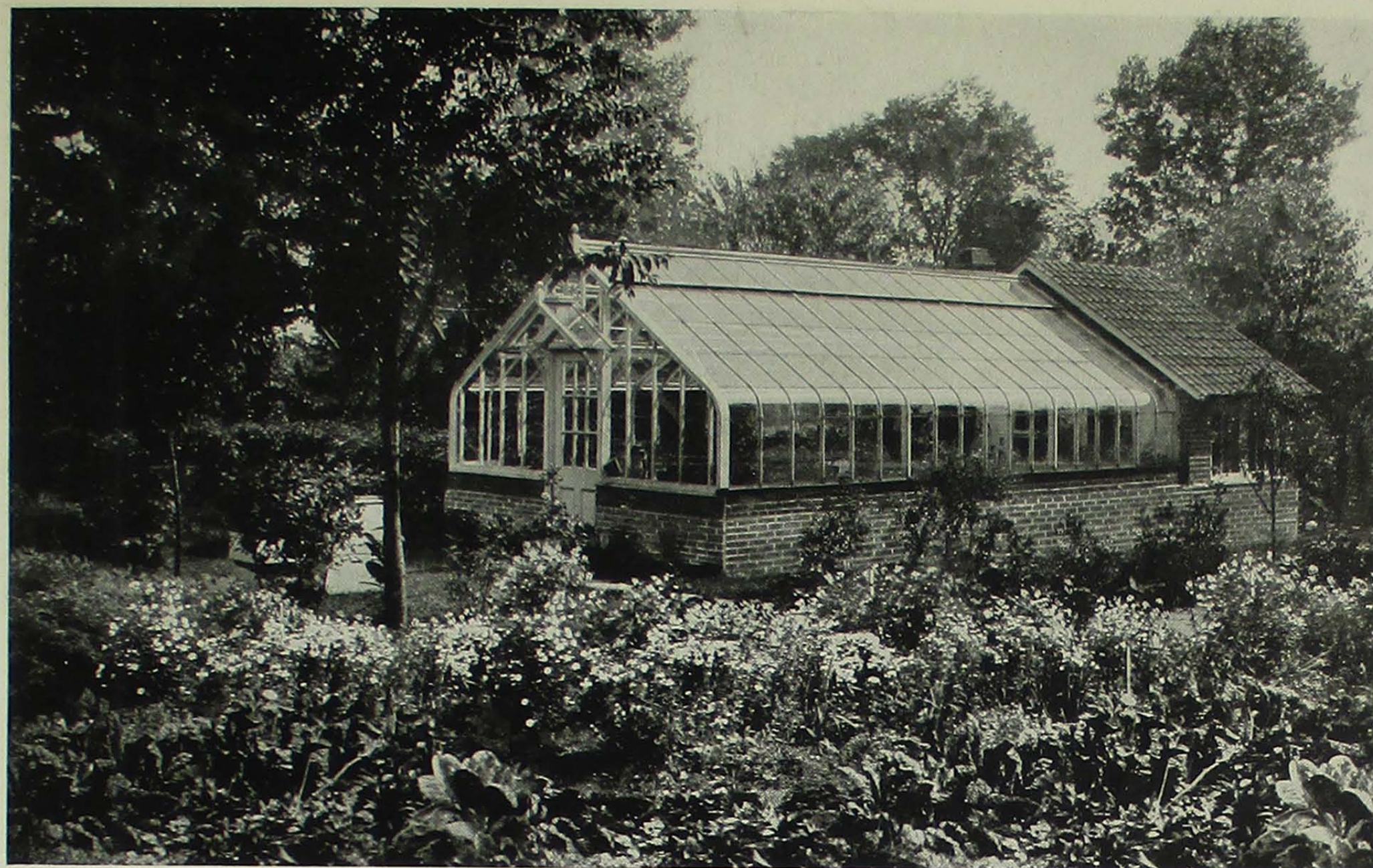
For a cool grapery, the leanto is used extensively, especially in the parts of the country where the seasons are so short, that grapes do not ripen satisfactorily outdoors.

When placed against a wall to both protect it against the North wind and conserve the sun's heat, the vines will have from 4 to 6 weeks' start of those grown in the open. No artificial heat is used.

Seeing how attractive it is built against this garage, you can well imagine how effective it might also be as a conservatory, opening off the residence.



Ground Plan Number 500



Number 501—Mr. H. E. Woodman, of Overbrook, Pa., is the owner of this charming little glass garden.

A Snug Little Full Span

Number 501

WITH a full span house, the location is not so arbitrary as with the leanto.

As long as nearby buildings or trees do not shade the house, you can locate it with its length running East and West; or North and South; and your growing results will be equally good.

This subject is called a detached one, as it has its own work room, and is independent of any other building. If you have a garage, the greenhouse might well be joined directly to it. If you cannot spare room from the garage to be partitioned off as a work room, you will still need to build a work room. Attaching such a work room to the garage, however, will save the cost of one gable, and simplify the heating question. One boiler answers for both.

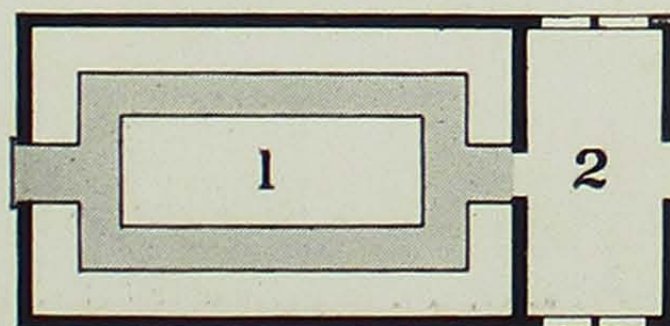
And now you ask, "What can we grow in a house this size?"

It's really surprising the number of flowers and vegetables it will give you. To have a continuous supply, it's only necessary to do what the gardeners call "careful re-cropping"; which means one crop following on the heels of the other, so no space on the benches is idle.

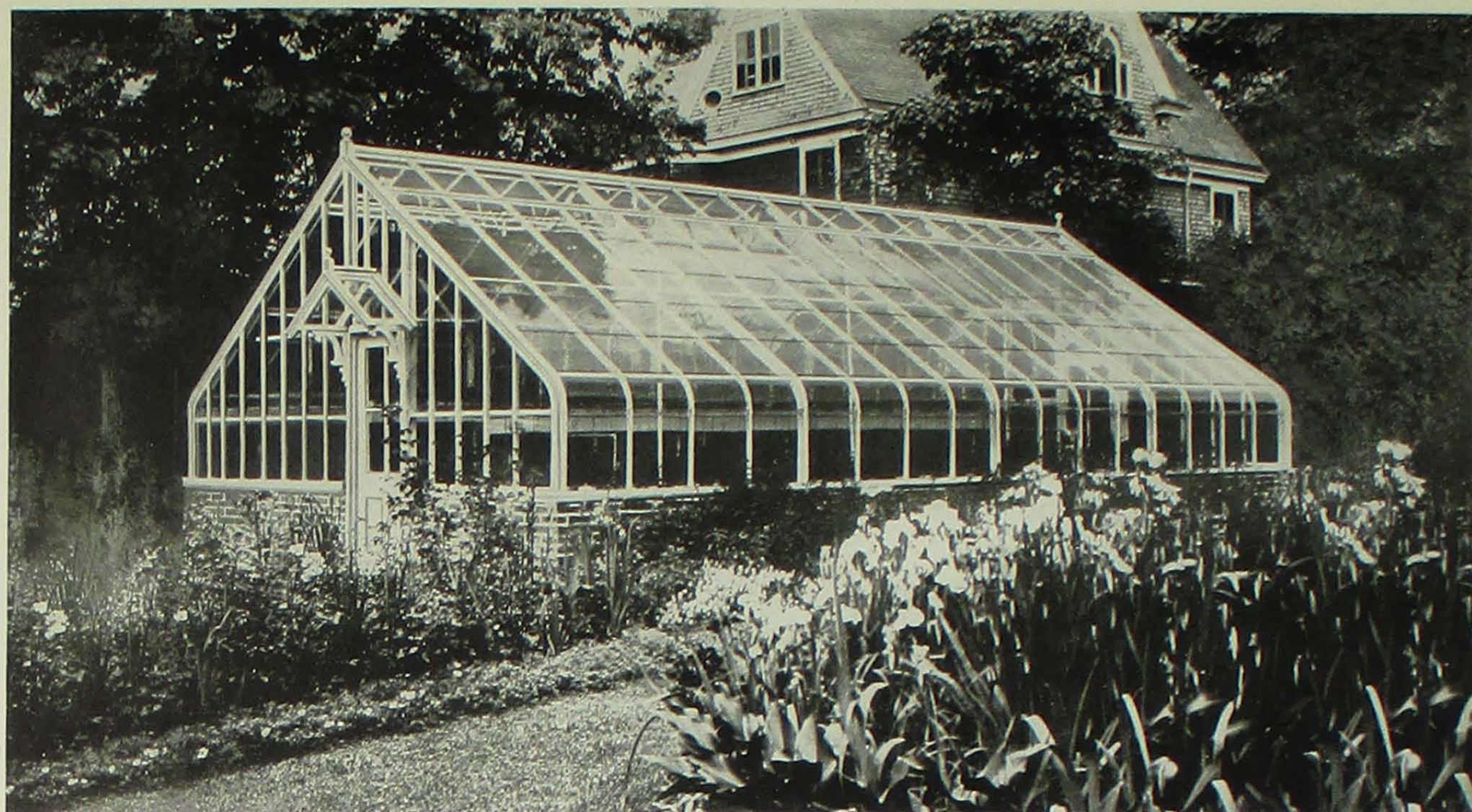
Of course, if you want to grow roses and carnations in profusion, you will need a larger house, giving you another compartment, so different temperatures and general growing conditions can be assured.

Some few flowers are fussily exclusive.

For particulars about work rooms and illustrations of different designs, see Page 71.



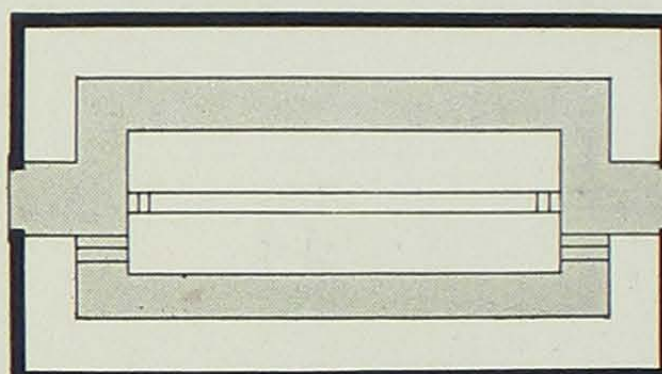
Plan Number 501



Number 502—At Norwich, Conn., snuggled in the midst of an interesting old-fashioned flower garden, is this glass garden, 25 feet wide and 33 long.

Small Ones Without Work Rooms

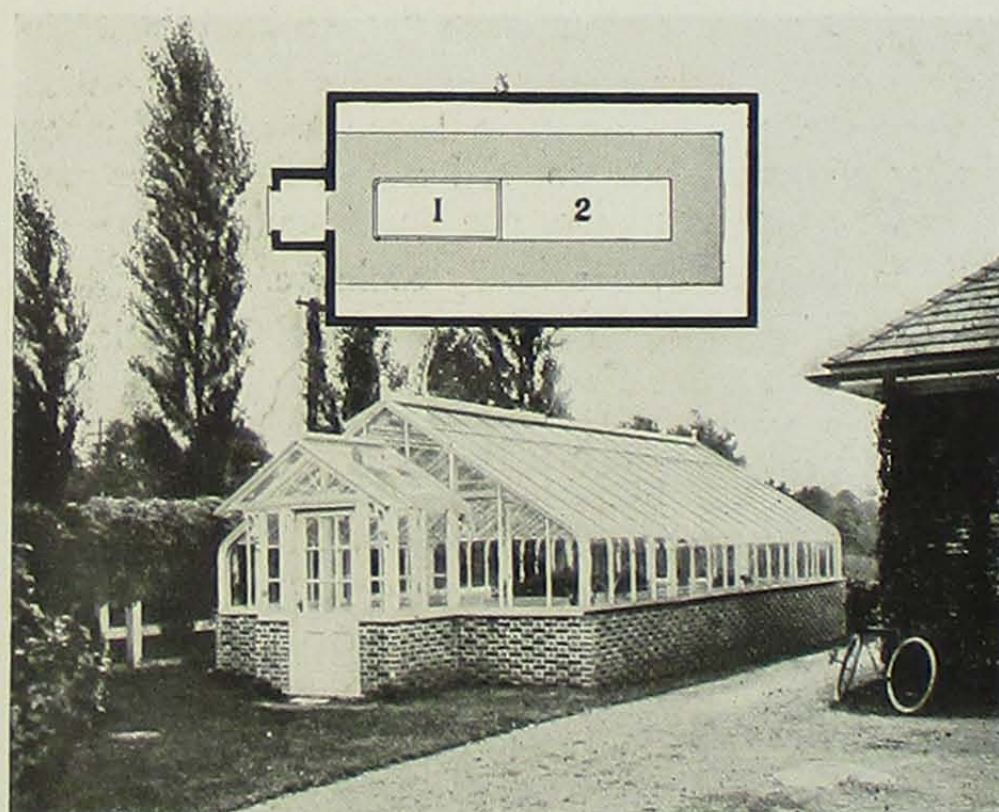
SOMETIMES the smaller greenhouse can be so placed that heating pipes can be carried from nearby buildings, overcoming the necessity of a work room for housing the boiler. The potting and such work, may then be done on an empty space on one of the benches.



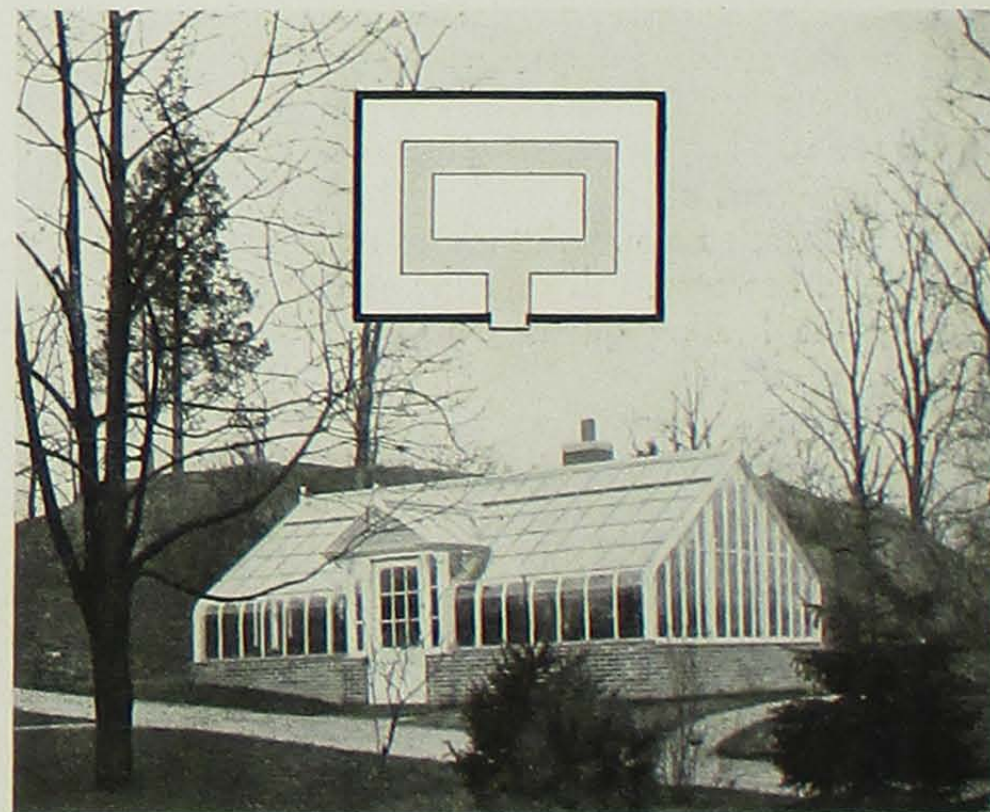
Plan of Number 502—Note that its 25 feet width gives room for two center benches, while the others on this page, 18 feet wide, have only one.

This omitting of the work room cuts the cost just that much. Some think the greenhouse is more attractive built that way. Some don't.

All we have to say is, that although a work room is not a necessity for small houses, it is a decided convenience.



Number 503—Erected for Mr. Charles Porter, St. Martin, Pa. It is 18 feet wide and 25 feet long. Number 1 is an aquatic pool. Number 2 regular growing space.



Number 504—Mr. Wm. Milne, of Rye, N. Y., called this hobby house of his wife's, "a health resort." "If Winters are long, and sleep is fugitive, try a greenhouse."

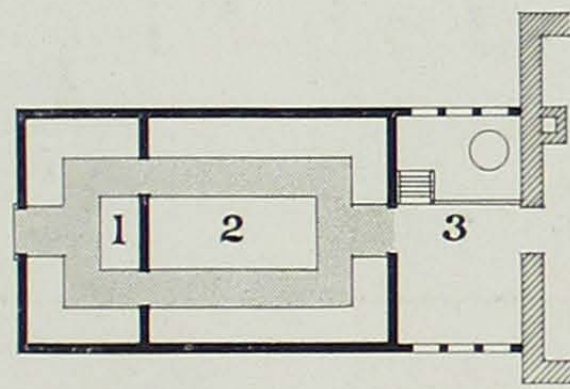


Number 505—Among the very first of our customers who saw the advantage of the combining of garage and greenhouse, was Mr. O. B. Mueller, of New Rochelle, N. Y. If compartment Number 1 was as long again, it would be better. Otherwise, it's an ideal little layout.

Three Combining with the Garage

JOINING the garage and greenhouse is a decidedly practical thing. It's compact. It's economical, as one boiler can heat both, at surprisingly little additional coal cost.

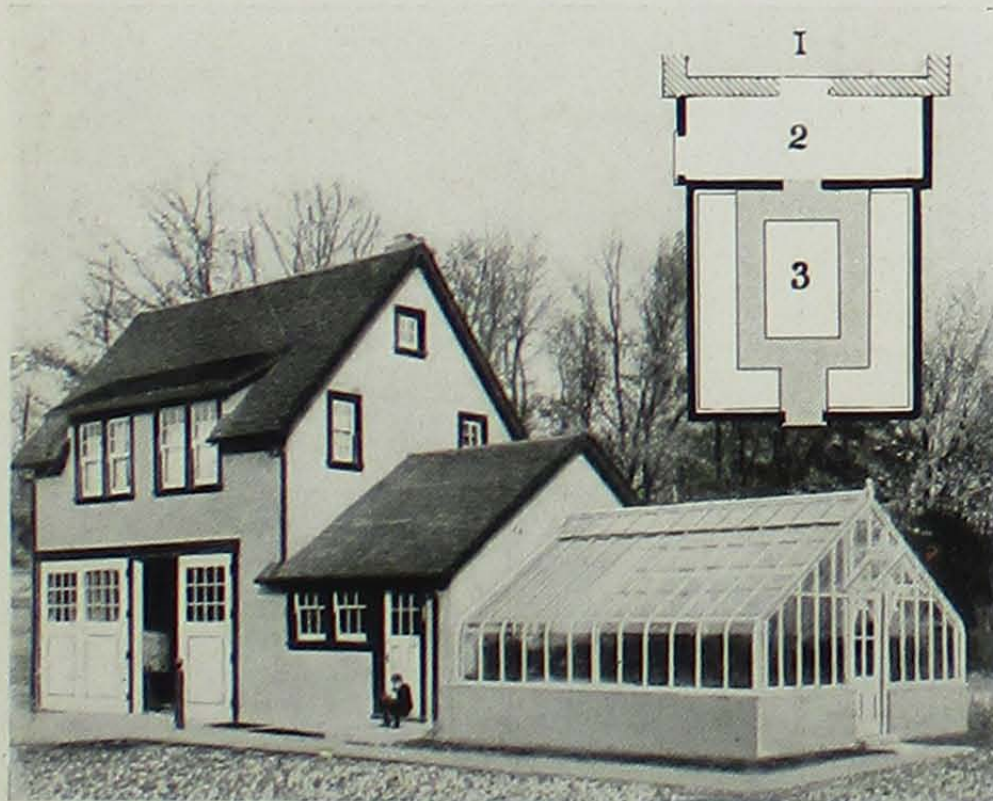
If your garage is large enough so part of it can be used as a separate work room for the greenhouse, so much the better, as then you eliminate the cost of



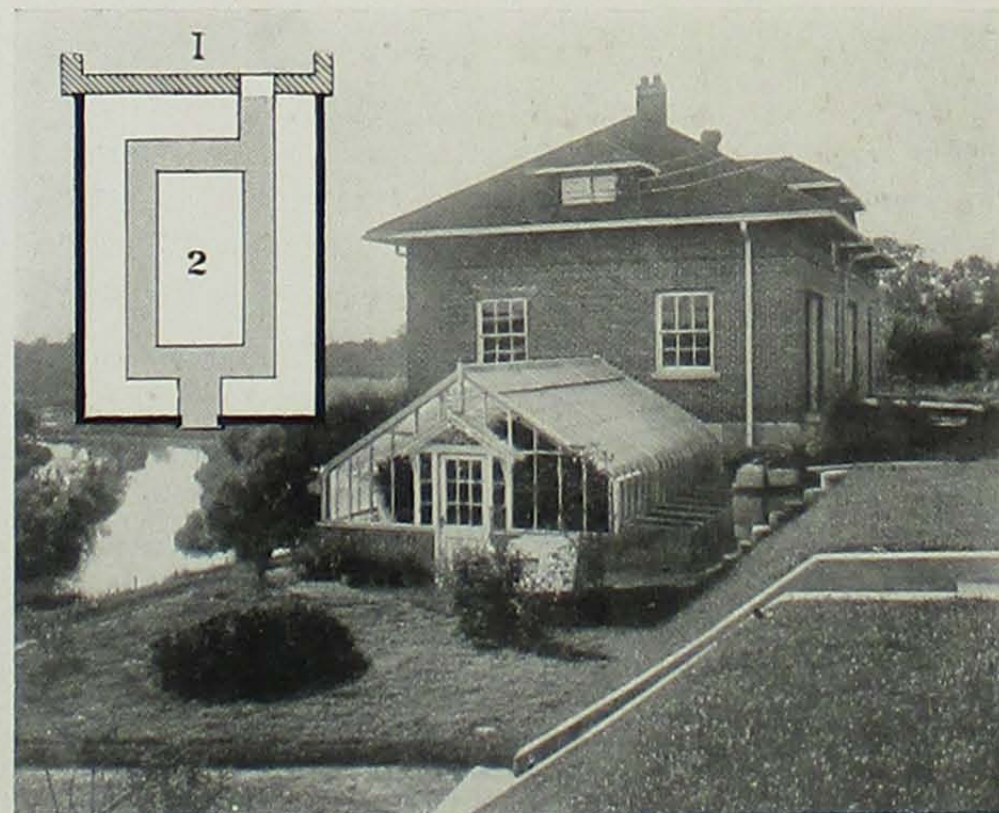
Plan Number 505

building one. But be sure there is no inside entrance between it and the garage, as the fumes of gasoline and burnt oil sometimes are very destructive to certain plants.

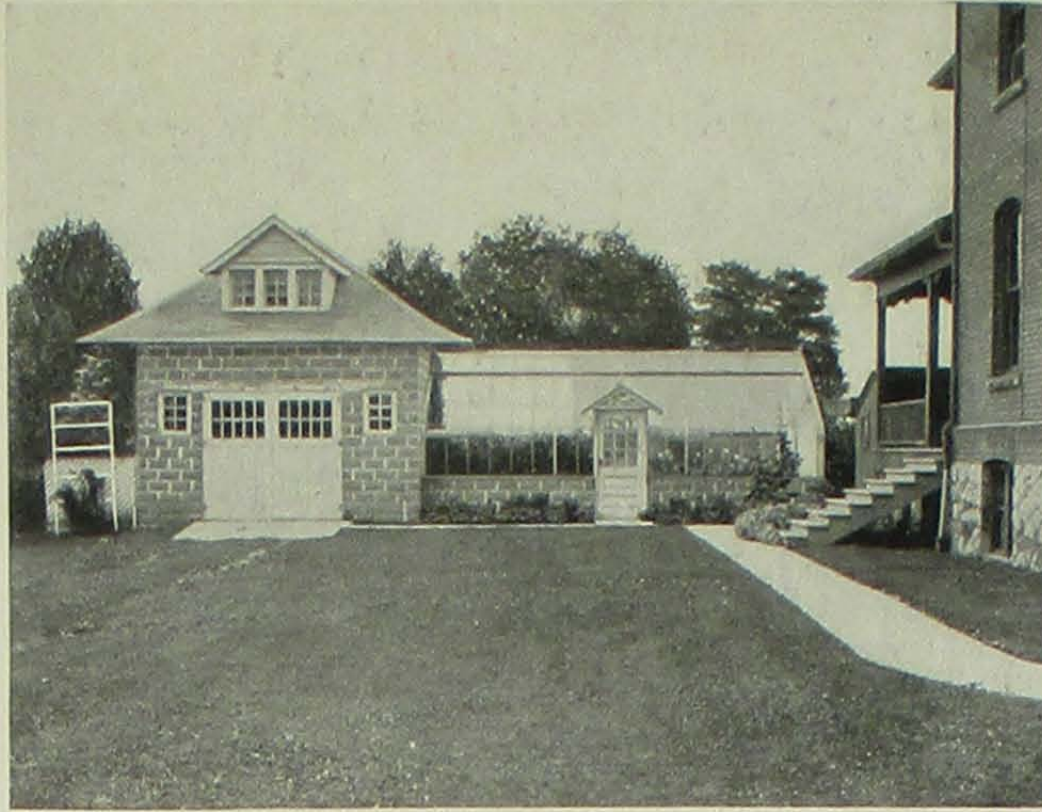
It's also just as well to have the boiler cellar inaccessible from the garage. This eliminates fire dangers from escaping gasoline.



Number 506—Looks English, but it is owned by Mr. A. D. Wheeler, Lake Forest, Ill.



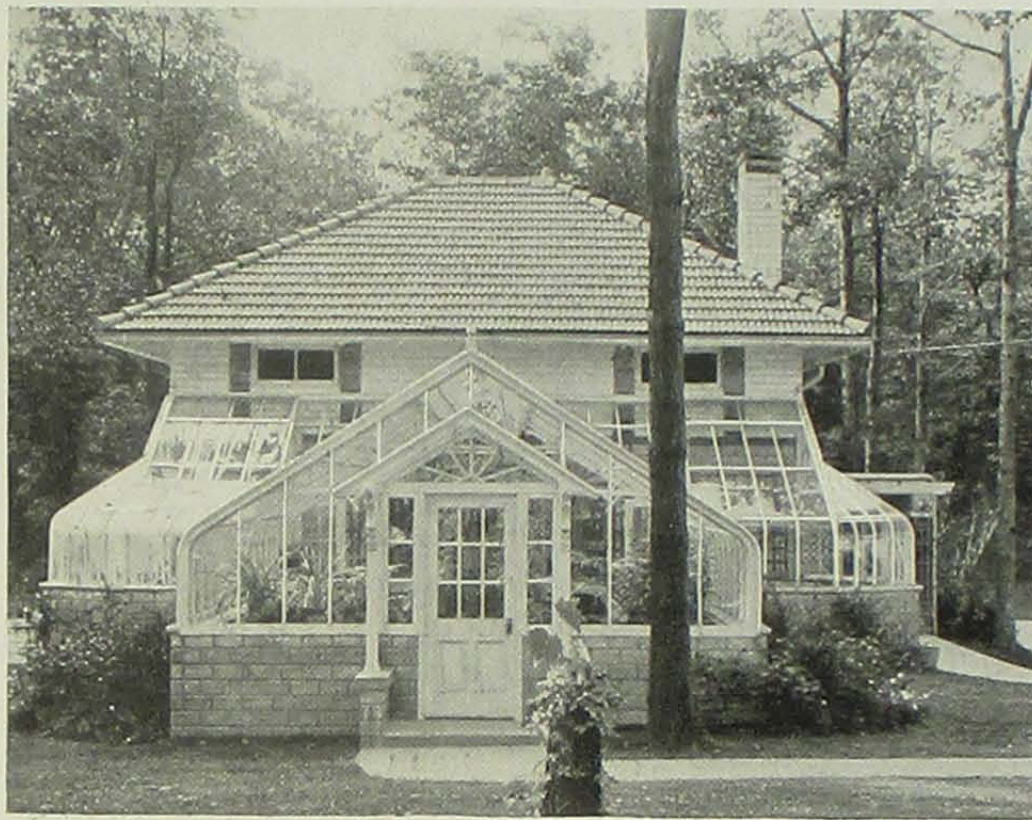
Number 507—The work room in this one of Mr. J. D. Chaplin's, at St. Catharine's, Canada, is beneath the garage.



Number 508

More Garage Link-Ups

NUMBER 508—Mrs. J. E. Gordon, of Wallaceburg, Ontario, Canada, seeing our advertisement about garage and greenhouse combinations, thinking that we might build a garage alone, called at our Toronto office to talk it over. Very naturally, we endeavored to point out the advantage of having a greenhouse as well. This is the result. It is 18 feet wide and about 33 long. Her daughter says: That in the Winter whenever mother is missing, we are generally sure to find her fussing with her flowers in the greenhouse.



Number 509

NUMBER 509—Within a stone's throw from the residence of Mr. O. G. Foreman, of Glen-coe, Ill., is their attractive white brick garage with its green tiled roof.

We were asked to build the greenhouse, following the rather unusual designs of H. L. Ottenheimer, the architect.

NUMBER 510—Located right on the property line boundary, is this link-up of Mr. F. J. Poth's, at Merion, Pa. The greenhouse has three compartments, giving three distinct controls of temperatures and growing conditions. As a result there is a perpetual supply of roses, carnations and a wide assortment of other flowers.

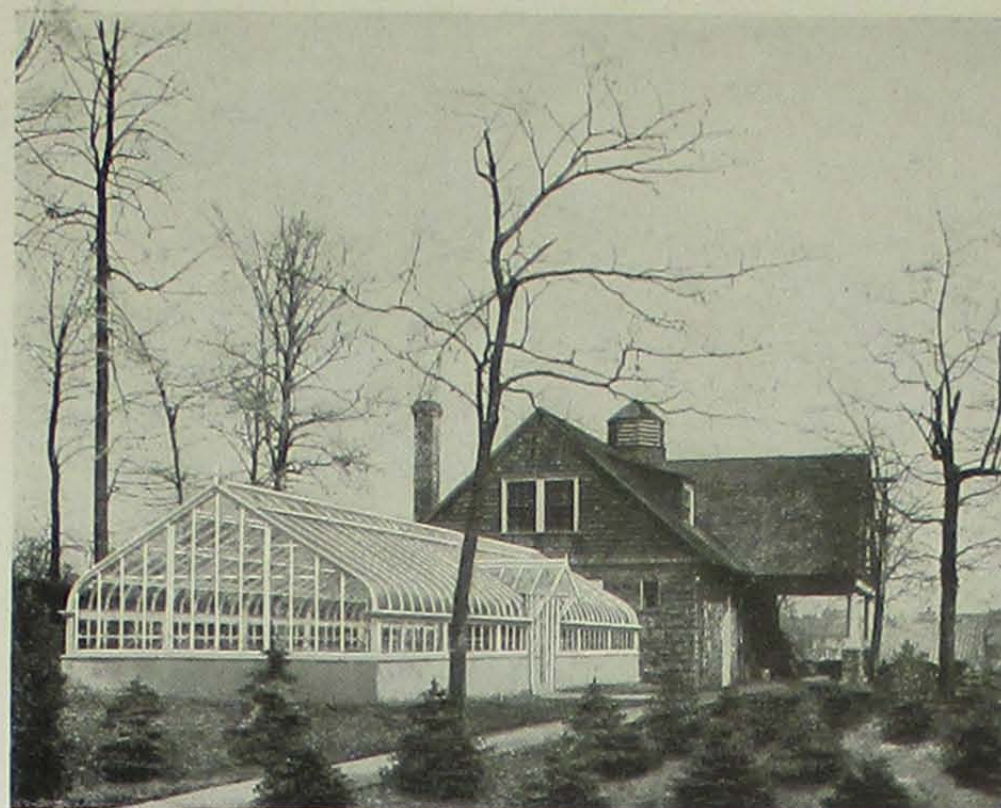


Number 510

And Still More

NUMBER 511—With a finely constructed spacious garage and plenty of room on the South side, what more logical than attaching a fine roomy greenhouse to it? So pleasingly does the combination now look, that you feel the garage must have been rather indifferent without the greenhouse. Being 18 feet wide and 50 feet long, it gives a goodly bit of bench room.

Adding the side entrance gives a point of interest to the design and breaks up the possible monotony of the roof lines.



Number 511

NUMBER 512—Particularly attractive are the link-ups of the so-called "Philadelphia Cut Stone" garages with a greenhouse. The white of the garage and that of the greenhouse woodwork and mortar pointings, give a most harmonious effect.

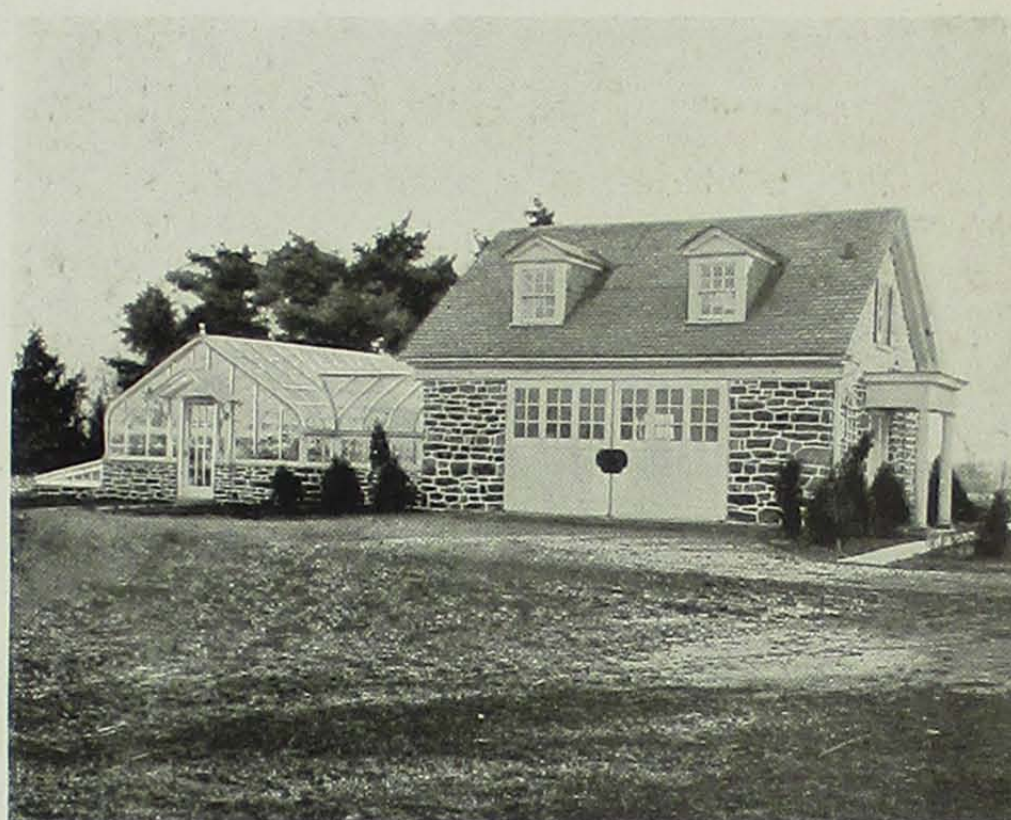
This one at the right, and the one below, are the same—one being the driveway view; the other from the garden.

It's a very complete layout with its little passage-way connecting the two.

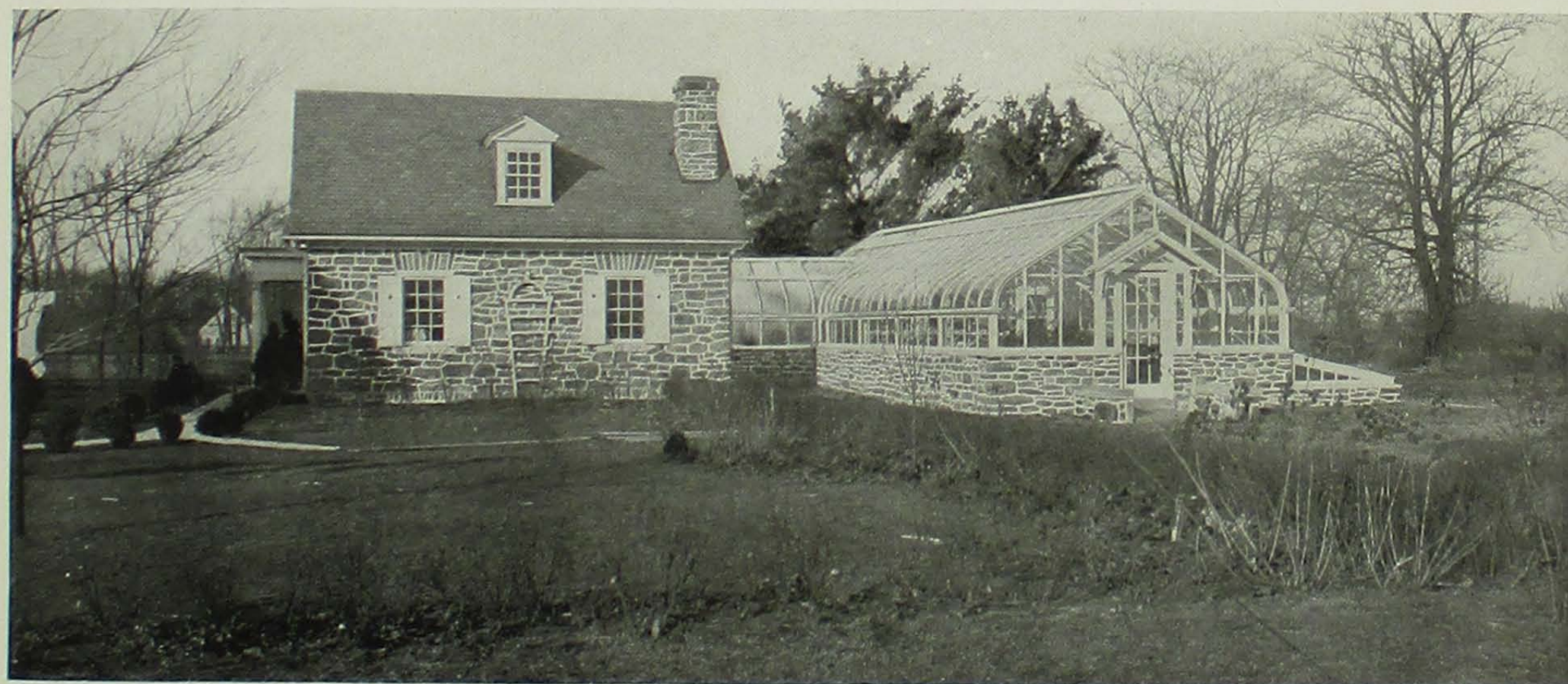
The house is 50 feet long and divided into two compartments.

A row of frames along the South side gives additional growing space for early Spring bedding plants and vegetables, violets and the like.

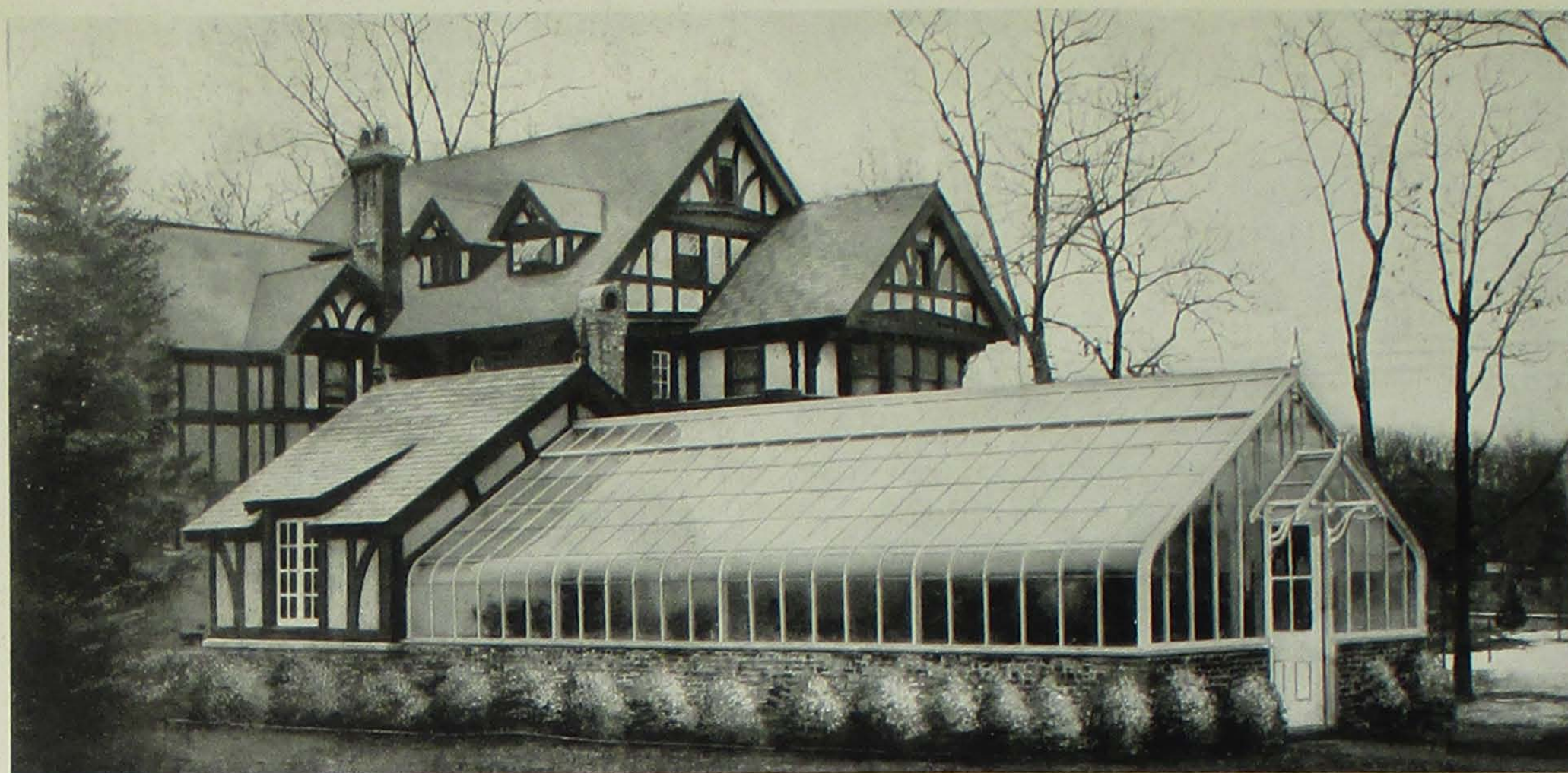
Mr. W. S. Duling of Mt. Airy, Pa., is the satisfied owner.



Number 512



Another view of Number 512



Number 513—Erected for Mr. E. Eiseman, Far Rockaway, L. I. Edward Shire, architect.
On the opposite side is a vestibule entrance which adds further to its attractiveness.

The House That Grew Up

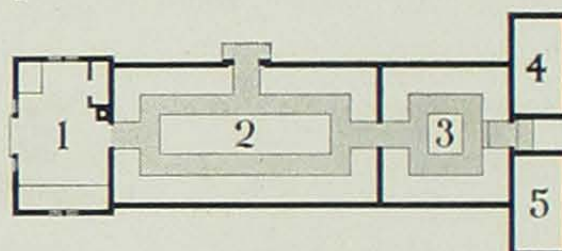
YOU may think that a house 18 feet by about 33 feet is going to be large enough for years to come.

But let us suggest that you at least take the precaution to locate it where additions can advantageously be made.

There is something about this growing of flowers and plants in a glass enclosed garden that makes you ever eager to try experiments; and having tried them, nothing short of their height of perfection will satisfy you.

Of all hobbies, surely none are more delightful, or healthful. As an adjuster of kinked nerves, it is most soothing.

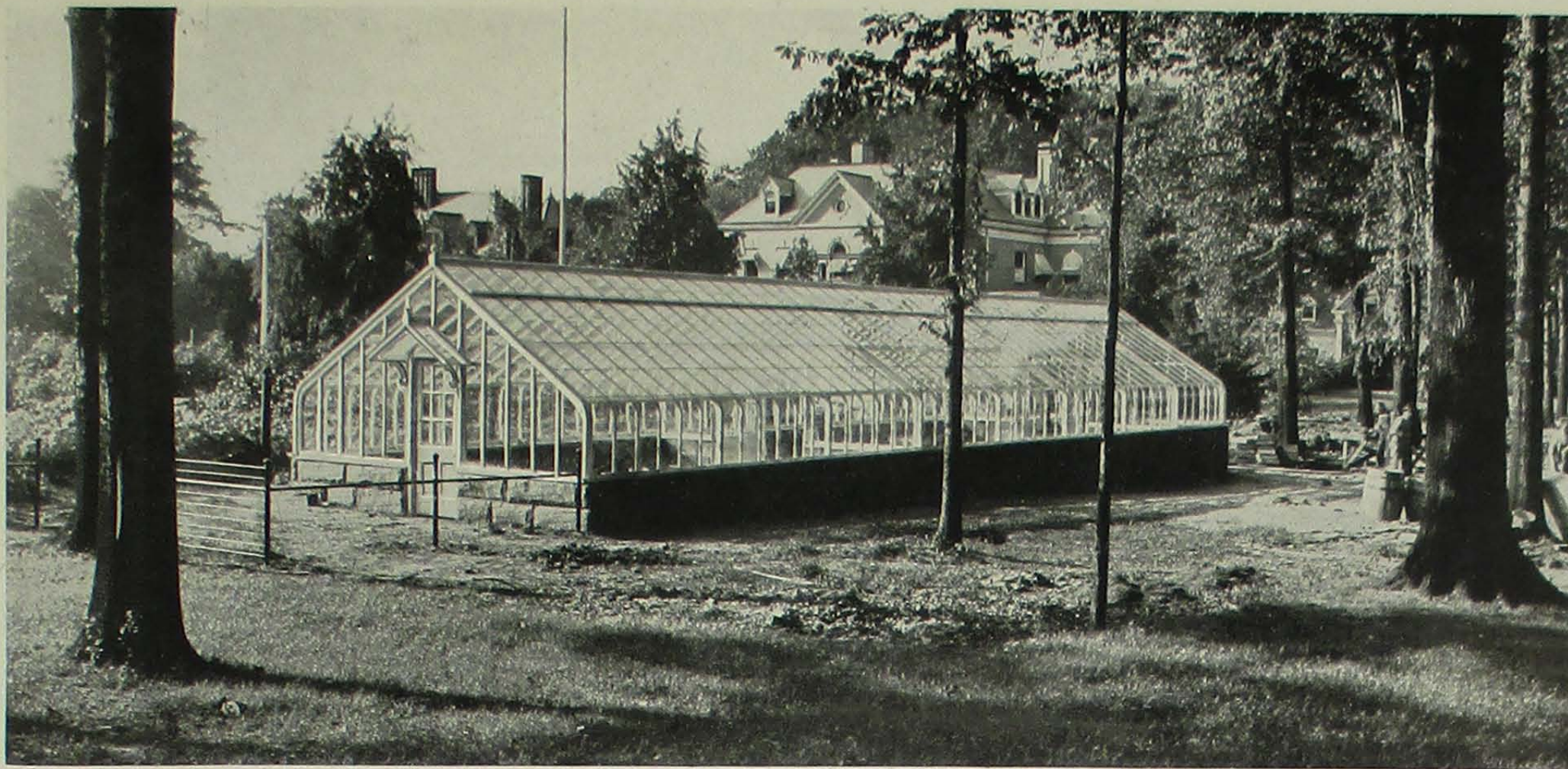
Mr. Eiseman was so enthusiastic about his house, that he had it located handy to his residence. The following year after it was erected, we added another compartment and a row of frames; which only goes to prove that what we said at the start is exactly so. Prepare for additions accordingly.



Plan Number 513—Number 1 and 2 were the original house. Compartment Number 3 and frames Number 4 and Number 5 were added later.



Number 513-A—Melons, fine, succulent, honey-hearted melons, are the kind you can always have from your greenhouse. Every one a dependable one; because every one can be grown under exactly the same uniformly ideal conditions.



Number 514—Two compartment house with a section partitioned off for the work room, as erected for Mr. Alexander Winton, Cleveland, Ohio.

Two Suggestions and a Reason

THE question of the work room is a problem to some. They seem to lose sight of its necessity as a general work place for the numerous things connected with caring for a greenhouse, such as potting the plants. They fail to appreciate that there must be a place to keep extra pots; a supply of potting soil, and a cellar for the boiler.

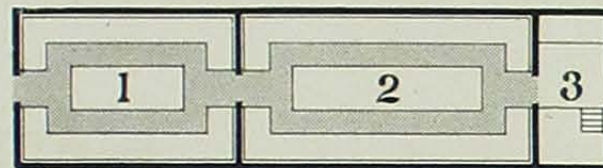
Many, after they do recognize its necessity, prefer to have it of greenhouse construction, in which case we have two satisfactory solutions. One

is to partition off one section of a space the width of the house and about 8 feet long, as was done in subject

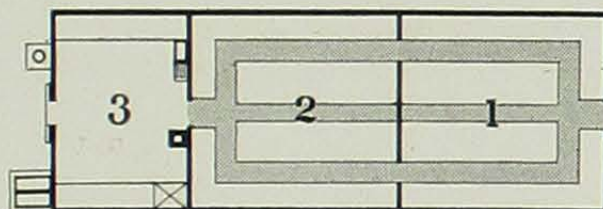
Number 514 above; the work room division is at the far end. The other way is to shingle the roof and part of the gable, and glaze the side like the greenhouse is in Number 515 below.

To take off the sun's glare, the glass roofed ones should be painted or glazed with ground glass.

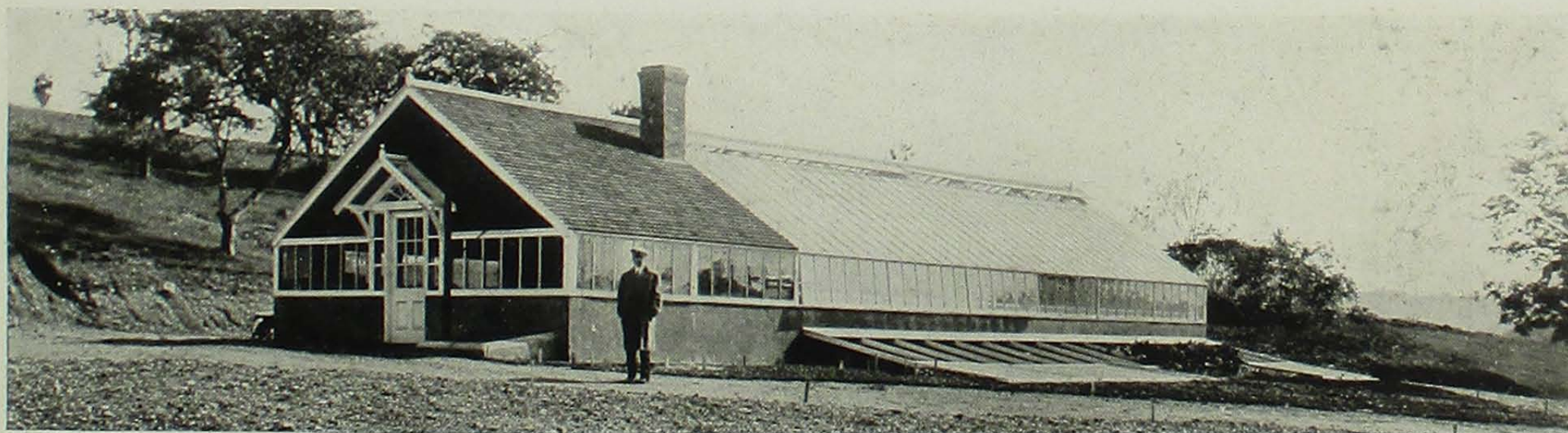
Some we have done recently, were tin and painted white, which has proven most satisfactory.



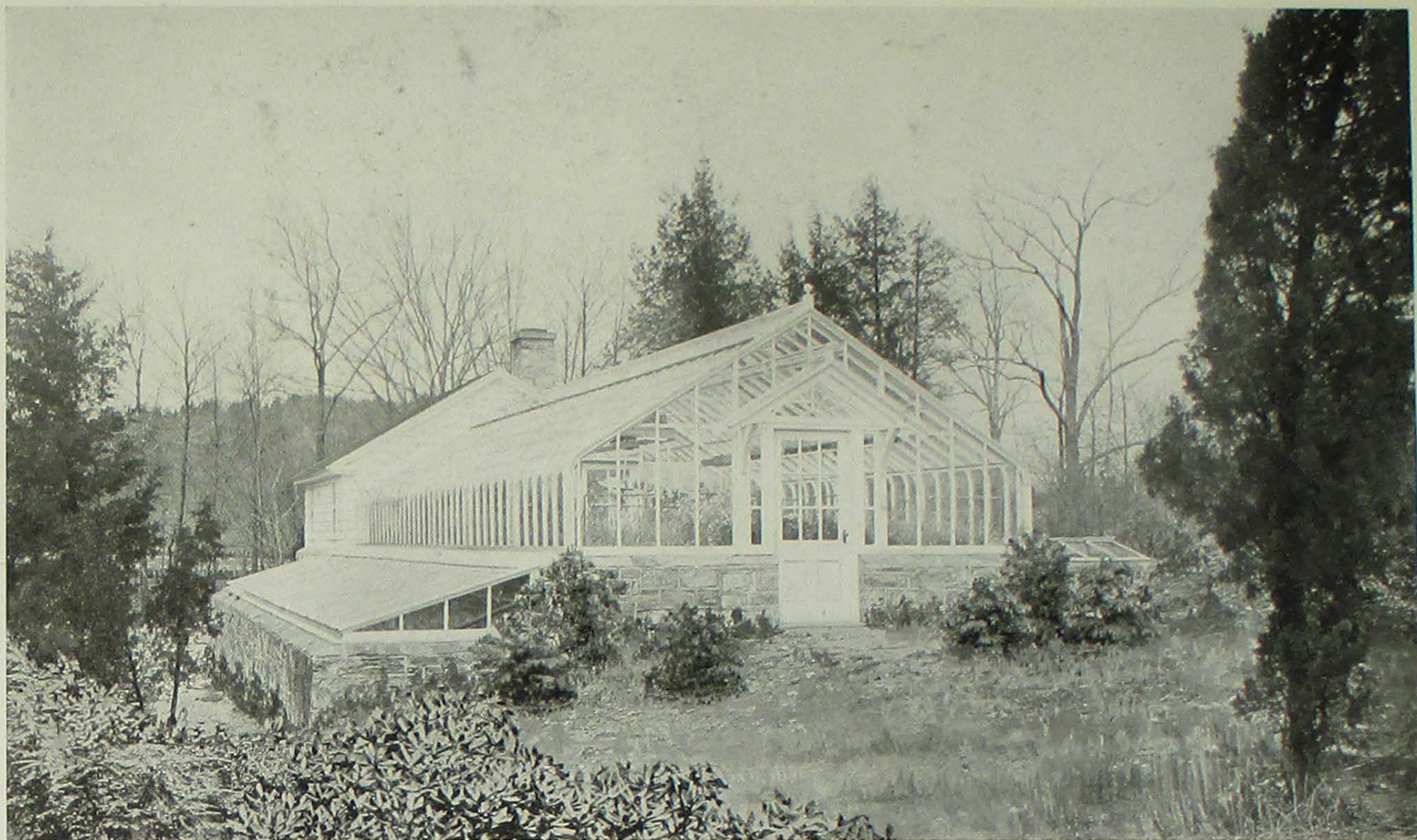
Plan Number 514—Division 3 is the glass roofed work room.



Plan Number 515—Division 3 is the shingled roof part.



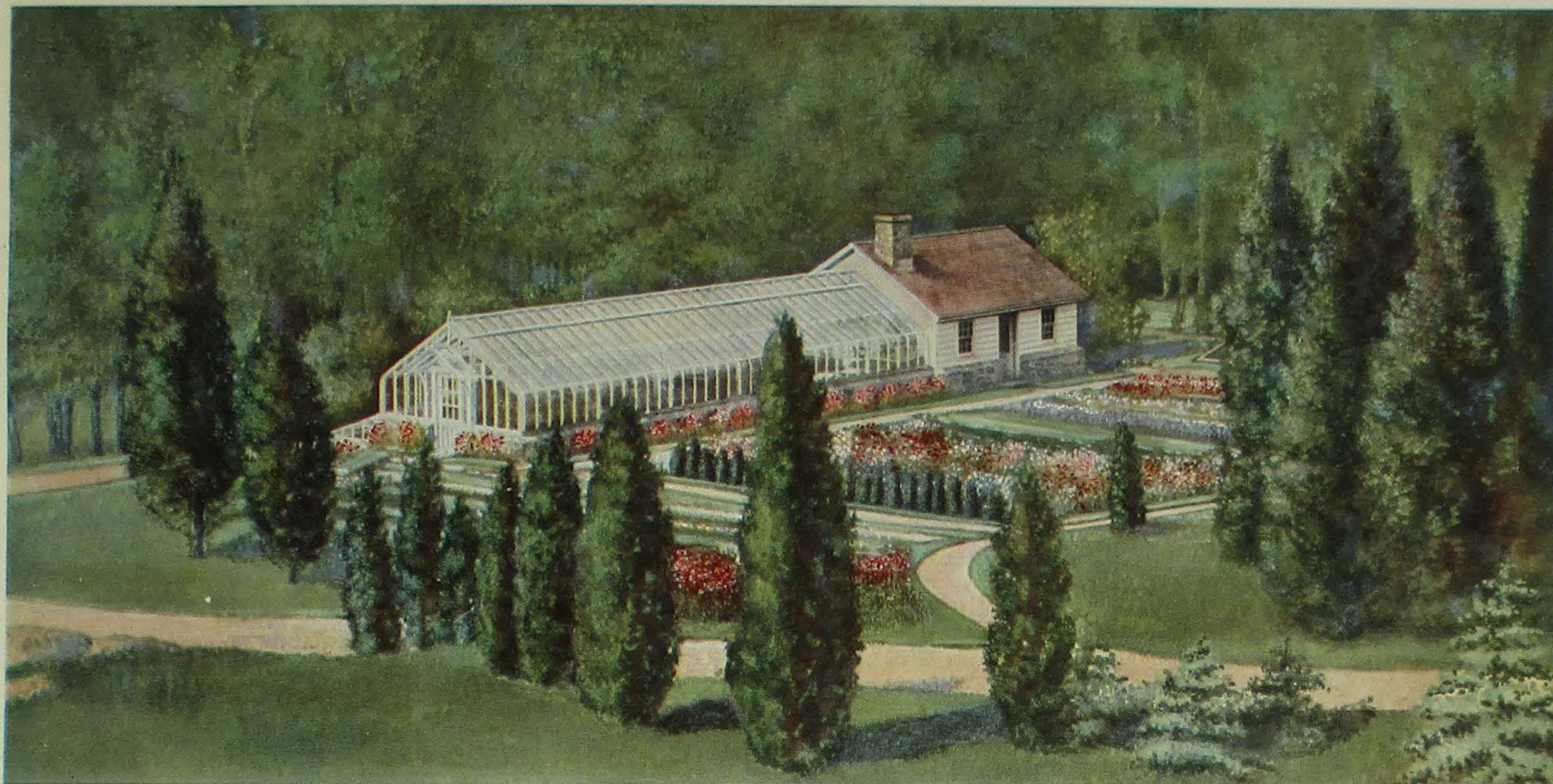
Number 515—This work room has the same steel frame work as the greenhouse. A glass partition separates it.
Located on the estate of Mr. Robert Goelet, Goshen, N. Y.



Number 516-A—Subject on opposite page, from a different point of view. The rapid slope of the ground at the south made it possible, in this case, to make the frames so deep they are called a pit, and are reached by stairs from the work room. This arrangement, however, is not usual, as the frames are generally but 18 inches deep at the back, and placed a distance of 3 feet from the greenhouse foundation.



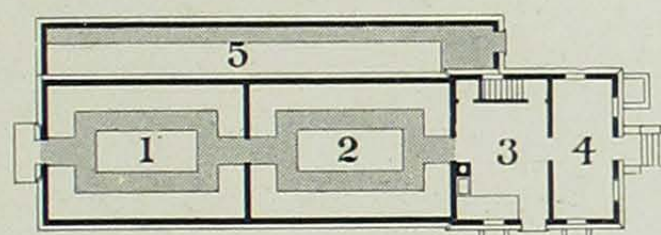
Number 516-B—The flower possibilities of such a house can best be estimated by this glimpse in this compartment, a few days before Easter. It is a glorious sight you could easily duplicate.



Number 516—Nestled in the garden against the lee of the hill, is this General Purpose House of Mr. John Magee, at Mt. Kisco, N. Y.

The Ideal Little General Purpose Layout

Number 516



Plan Number 516—One and two are the greenhouse proper. Three, the work room. Four, place for tool storage and semi-hardy tub plants. Five, a row of heated frames.

FOR an all around general purpose greenhouse of moderate size, the one 18 or 25 feet wide and 50 feet long is ideal. It's not so large that it runs into much money, or requires extra skilled help to run it. Still there is sufficient bench room for meeting the average requirements.

Its two compartments give an opportunity for two temperatures, to meet varying conditions demanded by different plants.

The one 18 feet wide gives you three benches, and the 25 feet one, four.

The wider houses cost less in proportion and give a valuable extra bench space for which you will find ready use. From a layout standpoint, it is one that can be advantageously added to in a number of different ways.

The fact that we sell more of this particular house than any other, proves its general merited adoption.

When a greenhouse is rightly located, correctly built, properly heated and consistently ventilated, it is quite the most enjoyable of possessions.

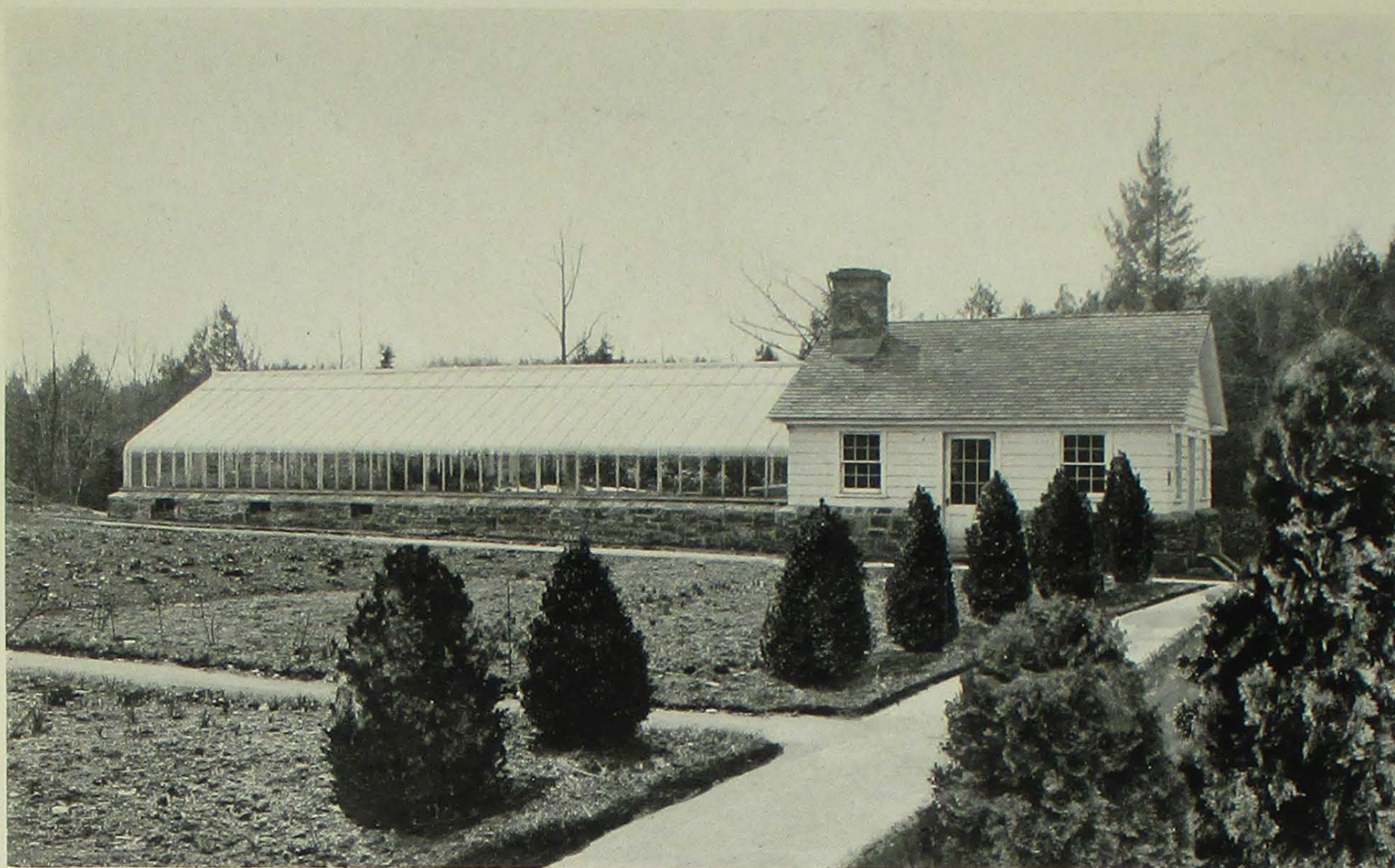
When otherwise, it's doubtful if there is anything you can put your money in that will cause you more vexatious disappointments. It might be compared with a car that won't crank.

The thinking of, as well as the building of, a greenhouse done the way we would do it for

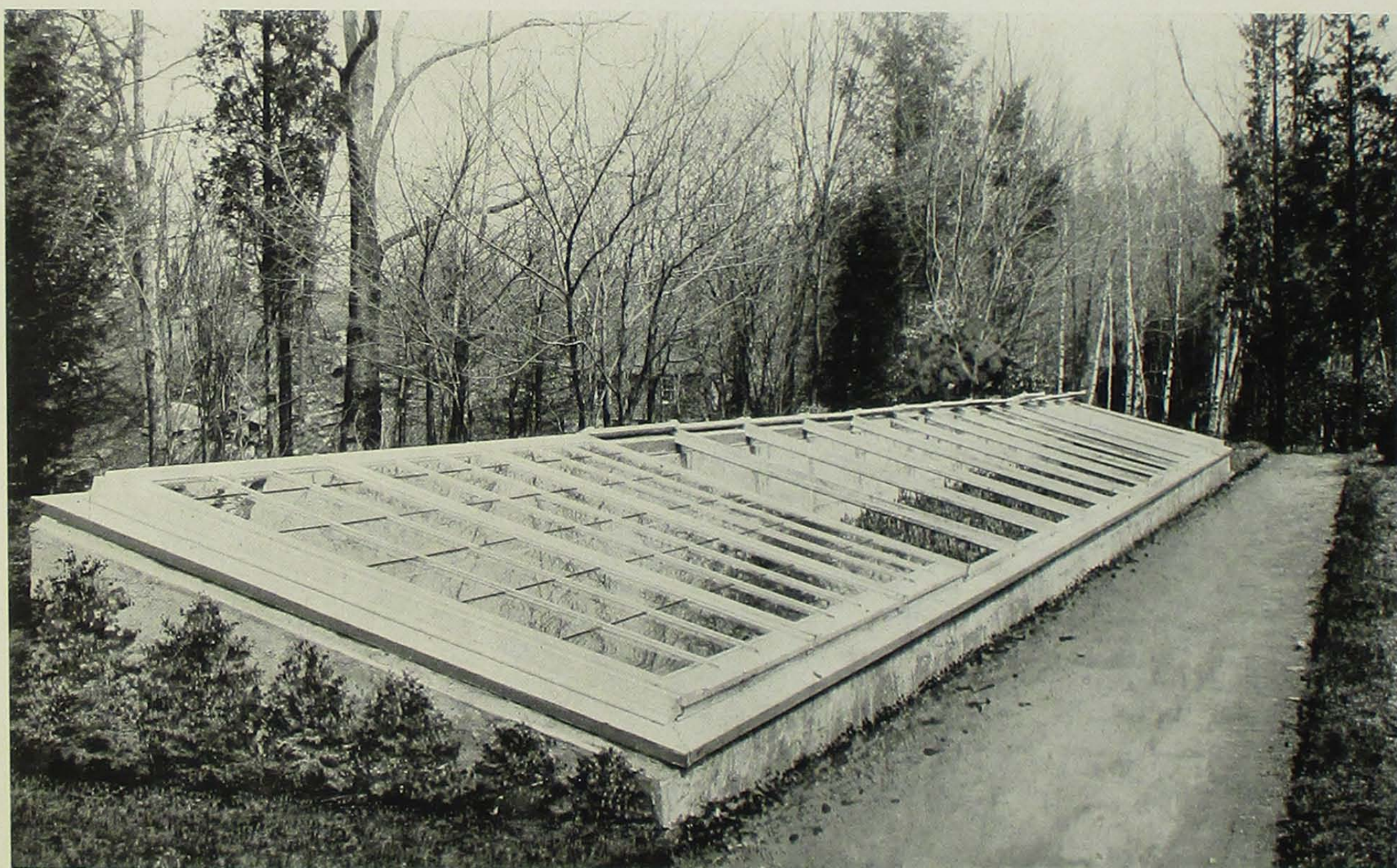
you, becomes a pleasure, as we entirely relieve you of every detail of the work. You buy a greenhouse of us for so much. That so much will, if you wish, include everything from the turning of the sod, to the turning on of the heat in your complete glass garden.

We can even supply you with a gardener to run it.

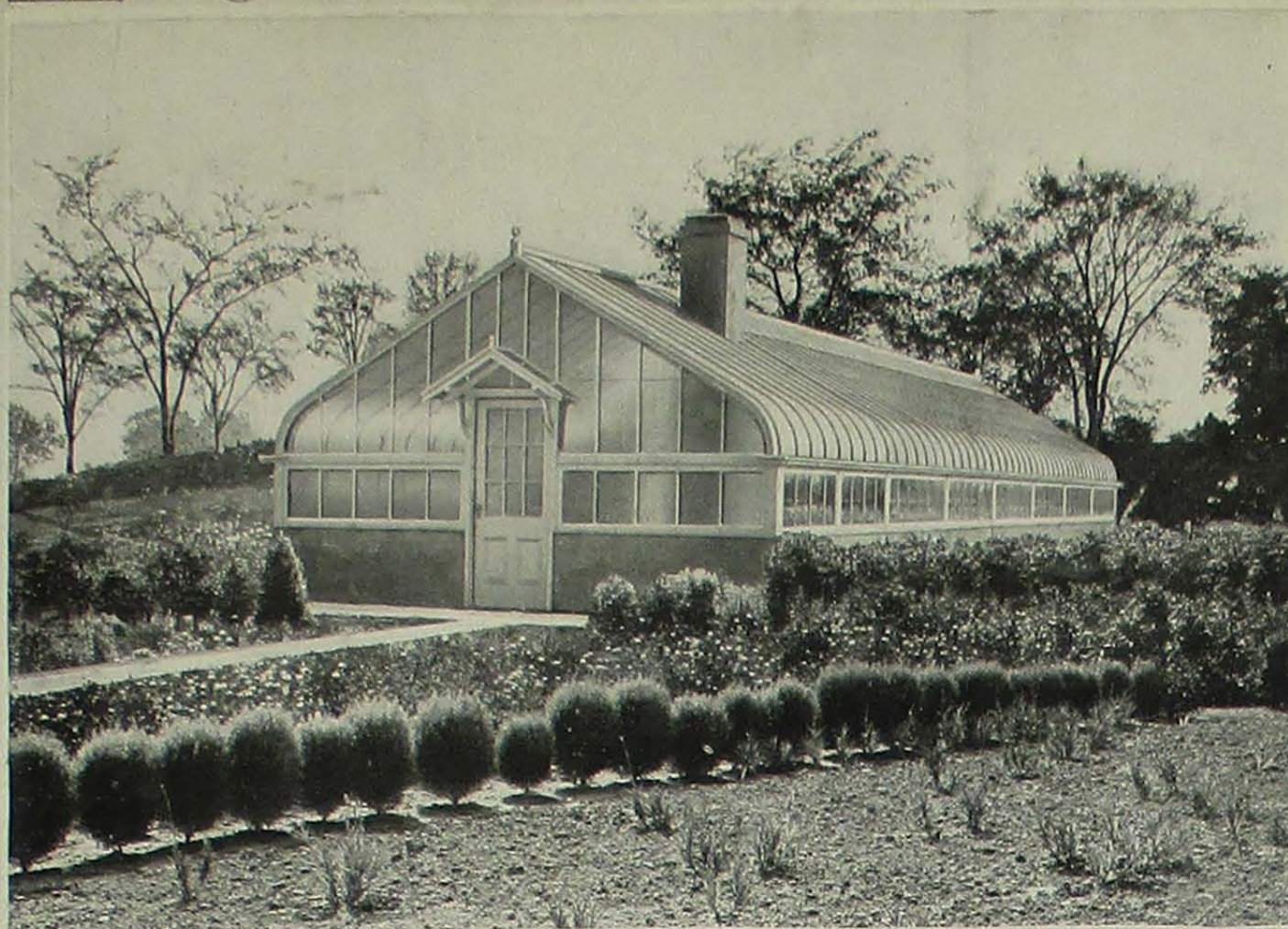
We have been building greenhouses for over half a century. Logically, we know how they should be built. Very naturally we want to build yours. Can't we arrange to talk it over together?



Number 516-C—You may feel that the combination work and tool room is too large for your needs, in which case, make it smaller and of any design you incline.
You will find a number of suggestions on Page 71



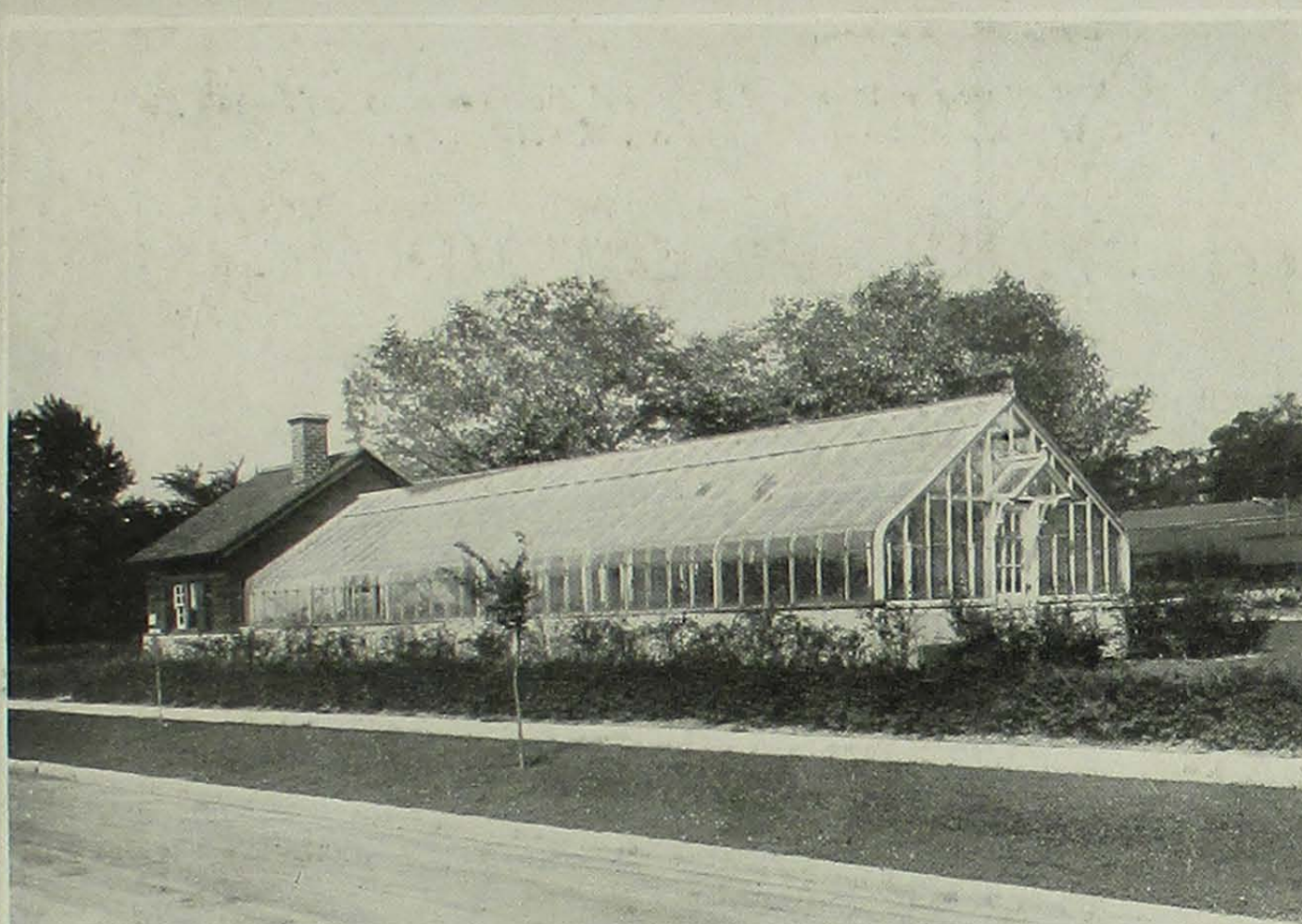
Number 516-D—If your garden is a large one and your grounds spacious, you will find an extra row of frames of great usefulness in growing both flower and vegetable plants for early setting out. For Winter storage of bulbs and the low growing semi-hardy things, like azaleas, it is indispensable.



NUMBER 517—This General Purpose House of Mr. Dunleavy Milbank's at Port Chester, N. Y., is unique in at least two ways. The construction is our Modified Curved Eave, which has so rapidly replaced other forms for private places.

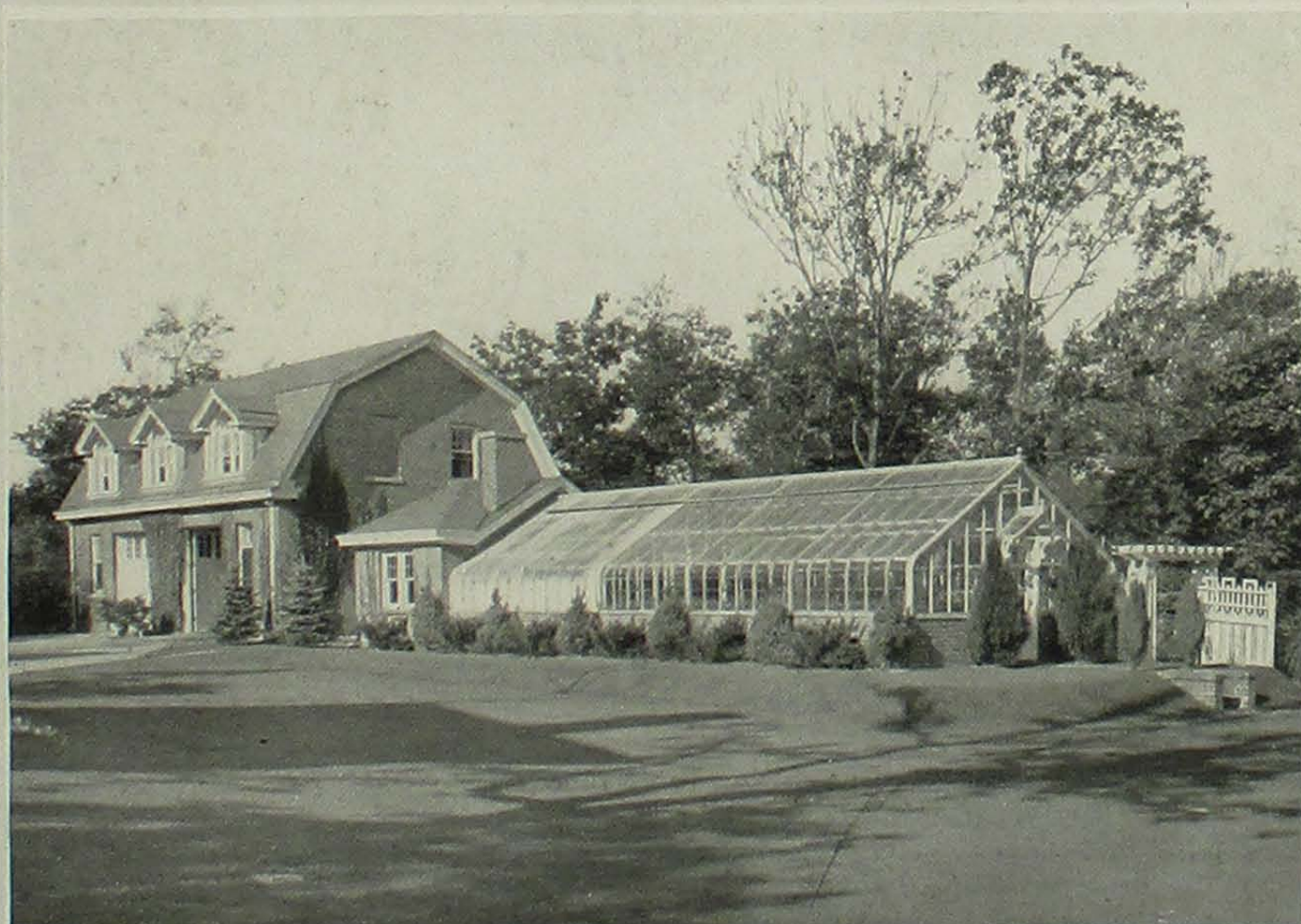
And the work room, which is at this end, is the same as the greenhouse, only that the roof is of tin plate painted white, giving an effect of ground glass.

On page 11 there is a brief discussion on work rooms, that if you have not read, will interest you. On Page 74, is a little say-so on comparative constructions that is decidedly worth while.



NUMBER 518—Bordering on one of the street sides of Mr. J. H. Patterson's property at Dayton, Ohio, is this General Purpose House. On the work room is a notice telling all comers that they are welcome to enter and enjoy looking at the flowers. Its wording is altogether in keeping with the many broad-minded acts for which this great industrial general of National Cash Register fame, is so well known.

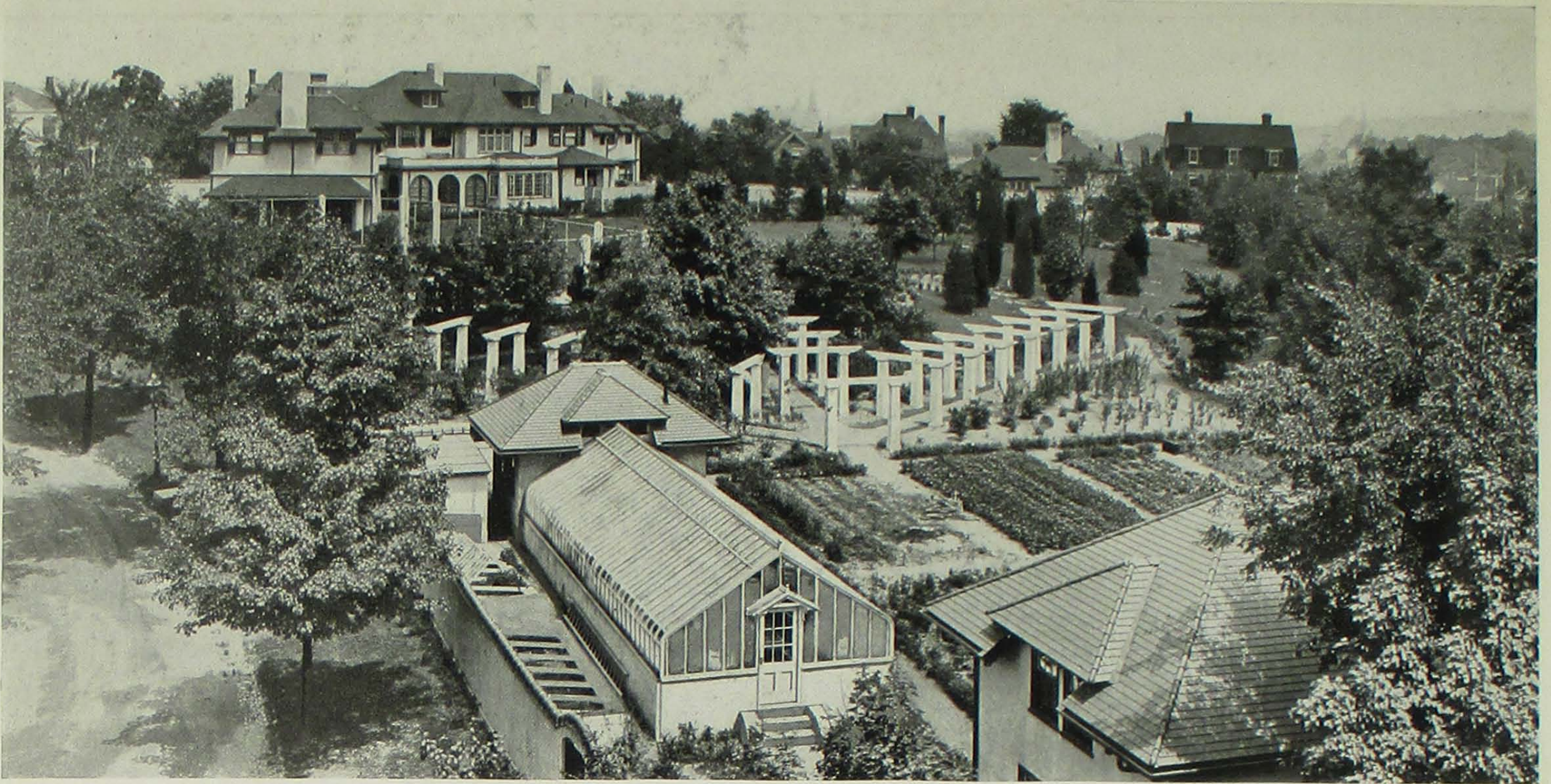
The work room is the so-called Craftsman design, having a broad, unplanned boarded siding, stained a dark, rich brown. The effect is most pleasing.



NUMBER 519—On the banks of Lake Michigan, at Highland Park, Illinois, is this delightful grouping of colonial brick garage, greenhouse and garden gate, belonging to Mr. J. F. L. Curtis.

Part of the greenhouse next the work room, you have noticed, is white shaded. This is to protect a collection of the shade loving plants from the sun's glare. The other compartment is used entirely for carnations.

The tasteful planting of evergreens, shows how effective such an expenditure makes the general picture.



Number 520—After much persuasion, we finally induced the care keeper of a nearby property, to allow us to go up on the roof of one of the buildings, to secure this bird's-eye view of Mr. F. C. Fletcher's grounds at Brookline, Mass.

Seven Interesting Examples of General Purpose Houses

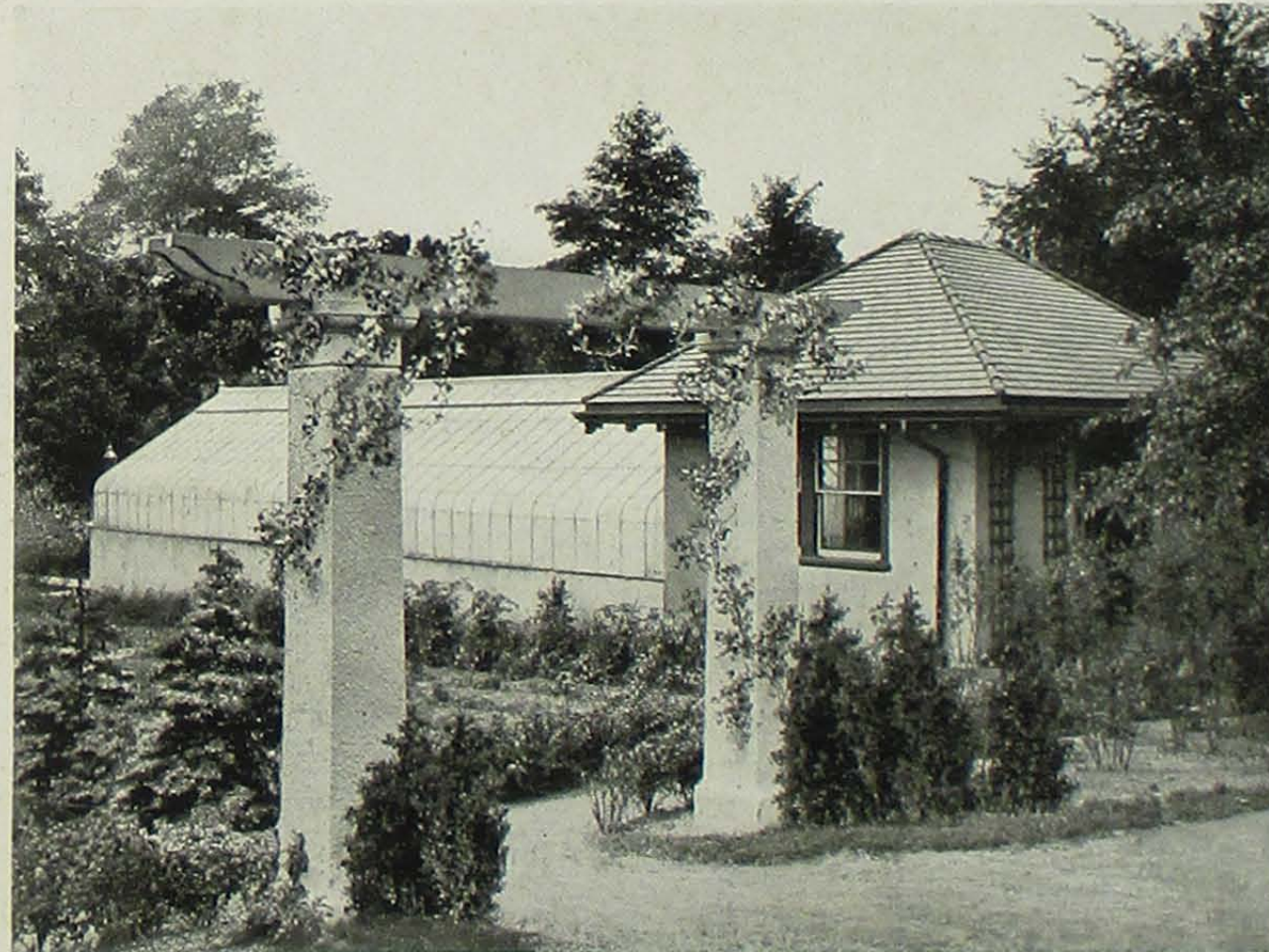
Number 520

WHEN talking about the all around practicalness of the General Purpose House, over the page, it occurred to us you might like to see several such houses in varying locations and each having different work room designs. So we collected these seven from widely separated parts of the country.

The one on this page is unique in its compact placing.

In going by trolley from Somerville to Boston, you pass a Spanish design, gray stucco wall with red tile top. Heavy solid oak gates make you wonder what is secluded behind them.

Knowing the countersign, our photographer gained admittance at the garden gate,



Plan Number 520—The greenhouse, like the general purpose one described so fully on the three preceding pages, is 18 feet wide and 50 feet long, divided in two compartments.

which brought him right to the cottage and greenhouse.

Strolling down to it in a carefree way, from the residence, are arches of a charming detached pergola, which are now graced with the lovely clambering Dorothy Perkins rose.

The greenhouse is placed so there is just enough space between it and the wall for a row of cold frames, with a walk on each side of them.

The nearby cottage and the greenhouse are both heated by the same boiler, which is an economical arrangement.

The work room reflects in design the Spanish note prevailing everywhere.

Altogether it is quite one of the most charming layouts we know of.

NUMBER 521—On a "nippy" Fall day just after Jack Frost had cast his withering pall over the cosmos, we took this picture of Mr. H. H. Hitchcock's General Purpose House at Highland Park, Illinois. When you must say farewell to the outdoor flowers is one of the times when a greenhouse, with its perpetual bloom garden, is a source of no small satisfaction.

This brick work room design, reflects the residence treatment.

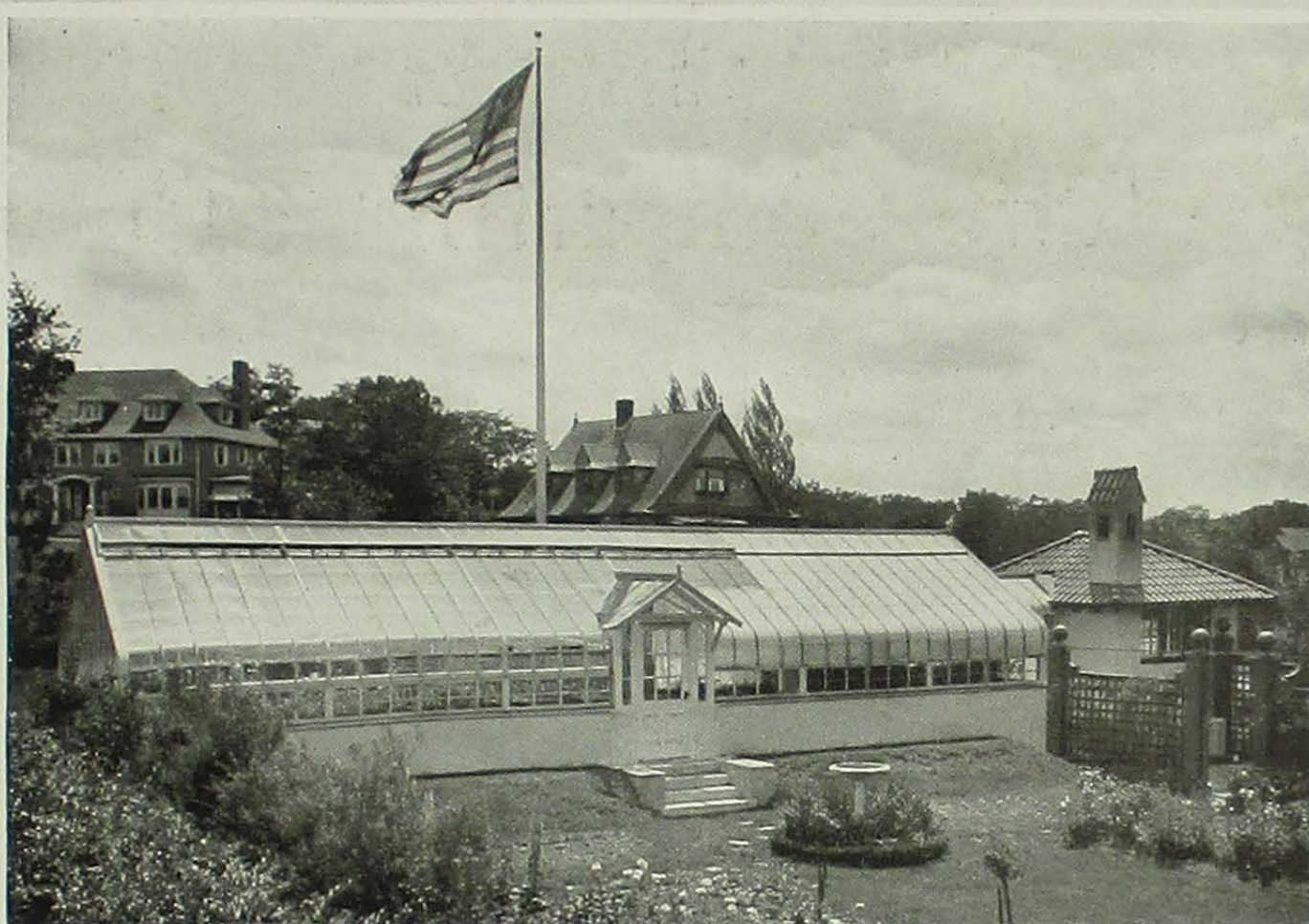


NUMBER 522—Bounding one side of an altogether charming semi-formal garden, with its grass walks and delightful old fashioned flowers, is this house of Mr. James Brown's, at Newton, Mass.

The side entrance is a feature well adapted to the location.

The work room is connected by an eleven foot wide glass passage, which is valuable for propagating purposes.

From any point of view, this subject appeals to you as being particularly well adapted to its setting.

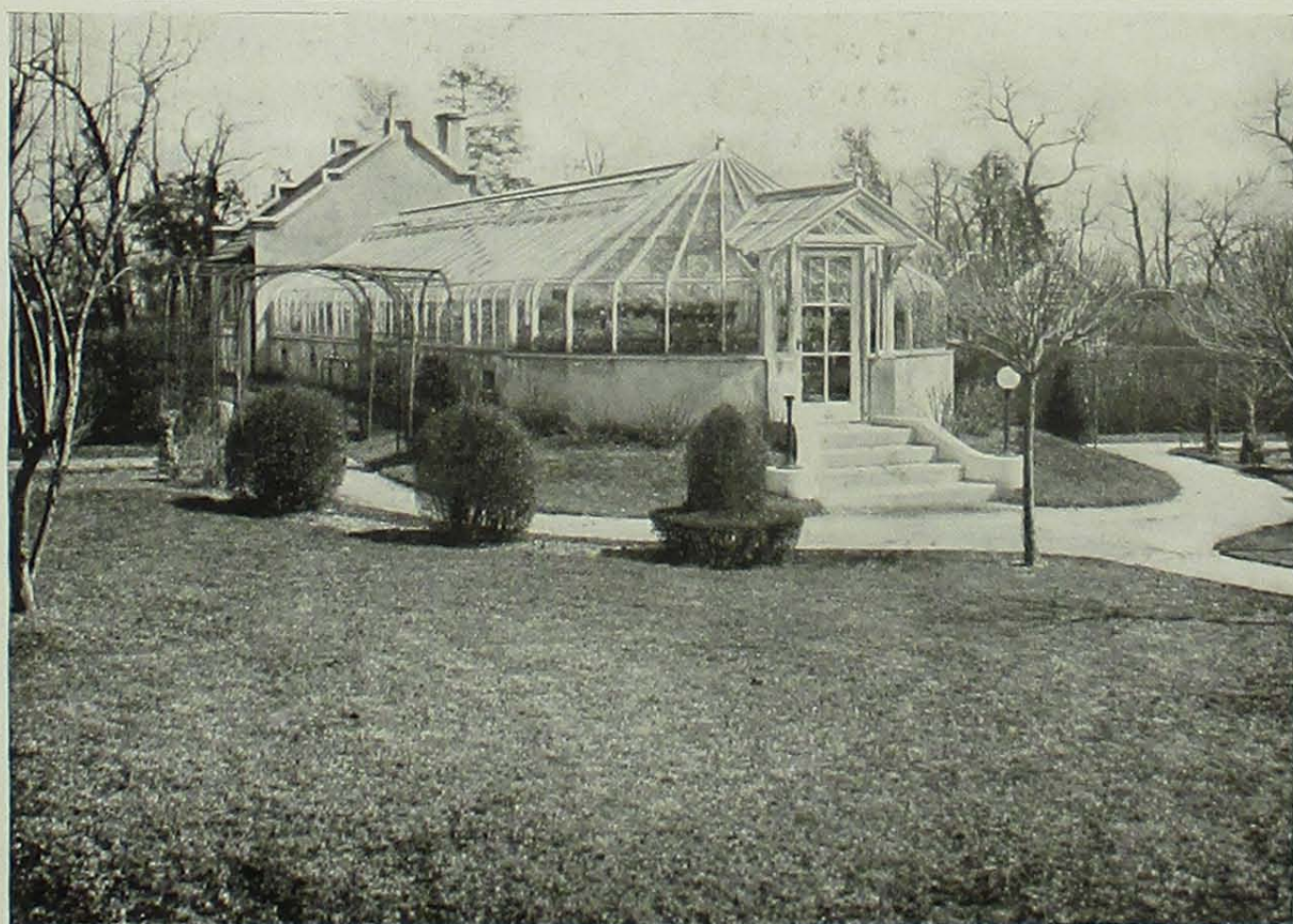


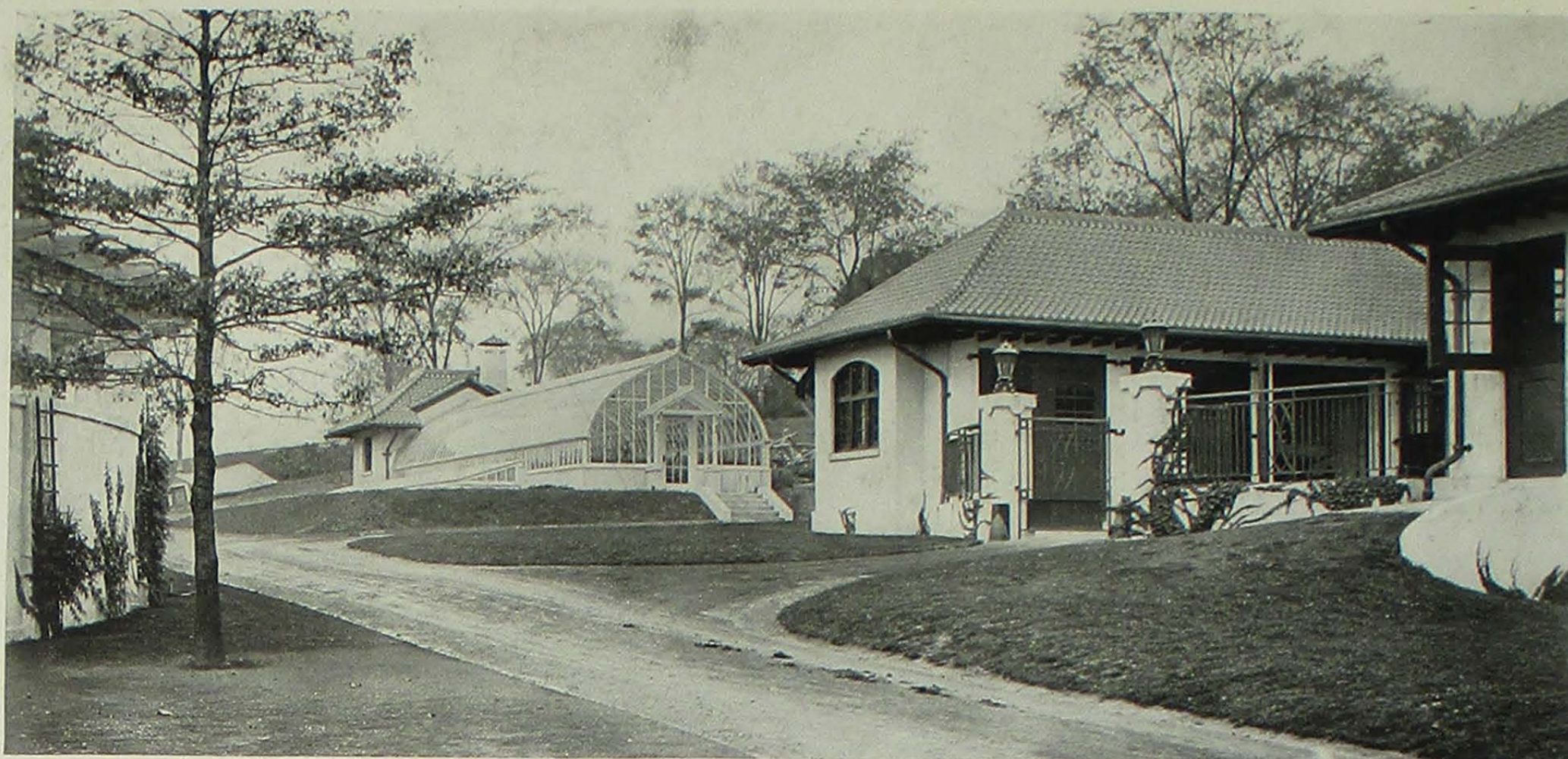
NUMBER 523—This one of Mr. I. D. Levy, Cedarhurst, L. I., is a decided departure in design from all the others.

As you might imagine that curved end, with its ornamental entrance, added very considerably to the cost; which, after all is quite the way with anything that is out of the usual.

The work room, although only seen in part, bears out in design the uniqueness of the greenhouse.

If you incline towards something distinctive and exclusive, we will gladly make a special design for you, just as we did for Mr. Levy.





Number 524—As a bit of harmonious effect, this grouping on Mr. Arnold Schlaet's grounds at Saugatuck, Conn., is one of the pleasing examples.

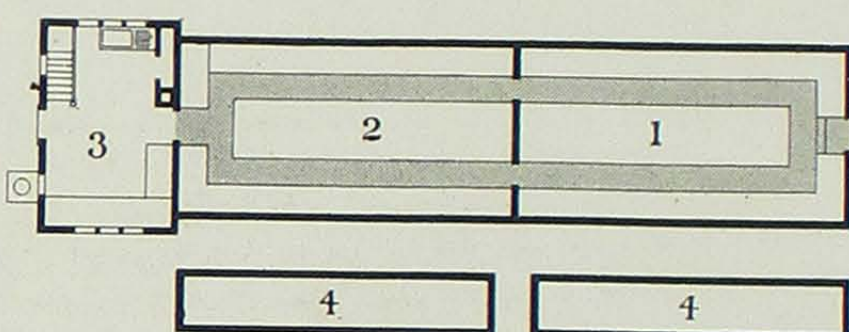
Two Compartment Curvilinear House

Number 524

THE house differs from the General Purpose subject Number 517, on Page 15, in having a more sweeping curve to the roof.

From the side of productiveness, they are no better than any of those shown.

There is, however, a certain advantage in the fact that the additional curve to the roof gives

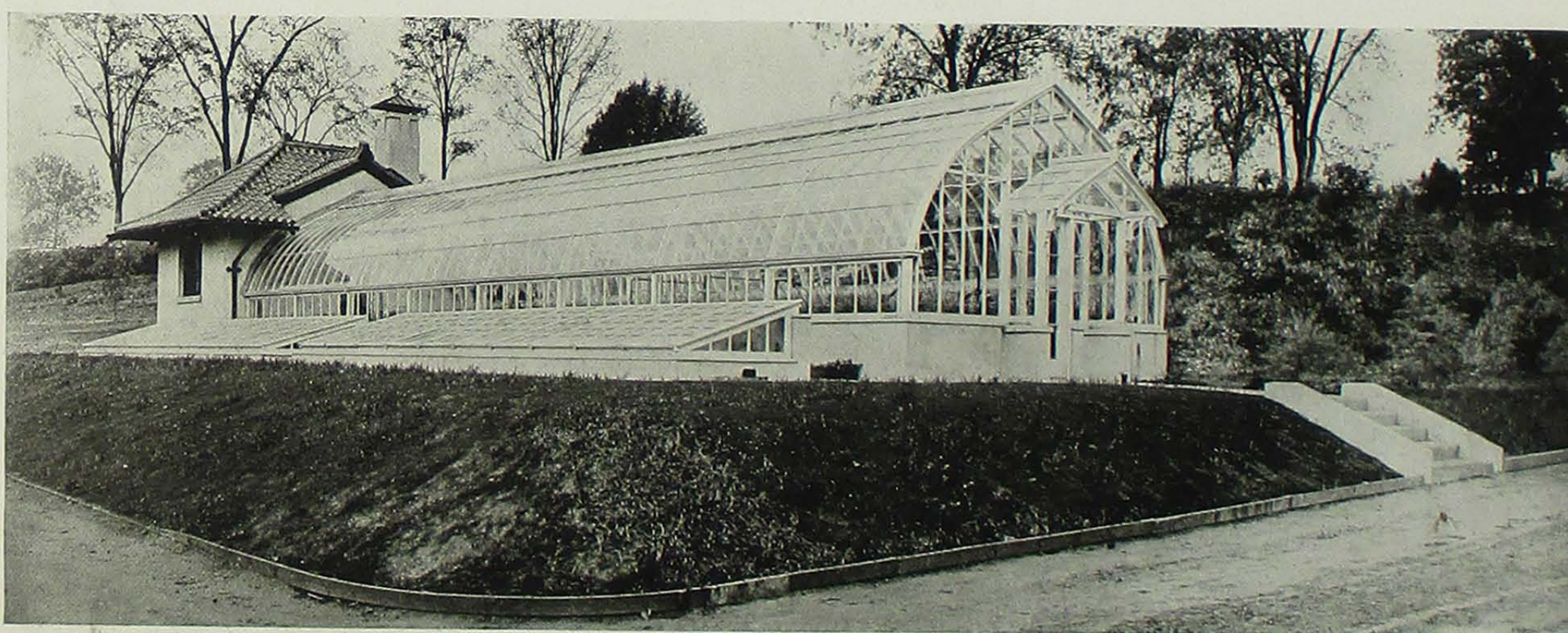


Plan Number 524—Note frames (4) are separated from the greenhouse, which is as it should be.

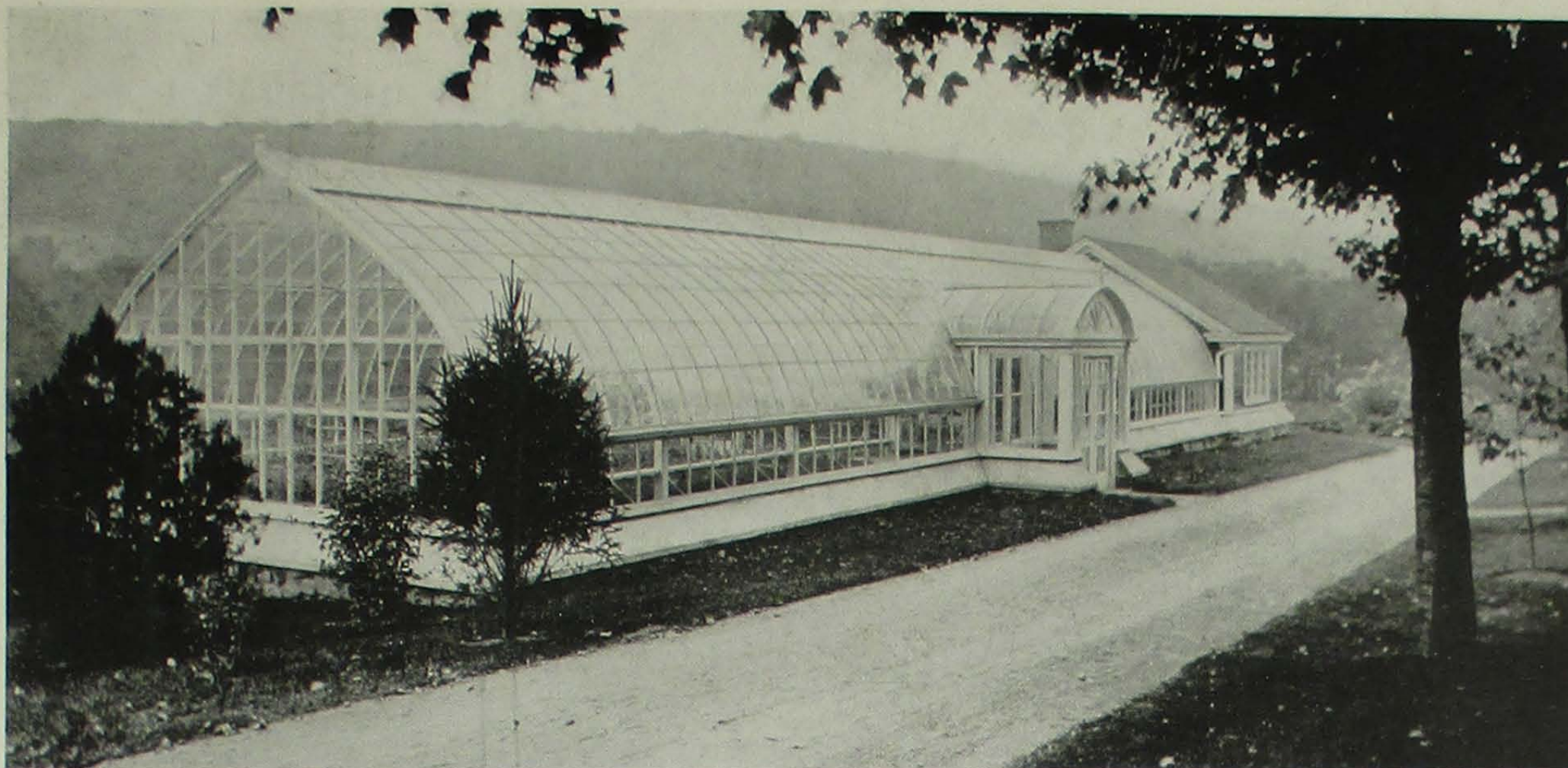
more head room for the taller plants, which makes the side benches more generally useful.

For grape growing the extra curve also gives more area for the vines to cover, resulting in longer vines and more fruit.

For potted fruit houses they are also ideal, giving ample room for both the height and spread of the trees.



Number 524-A—This nearby view the more noticeably shows the curve height of the roof. The gable entrance, simple as its design is, adds a decided note of ornamentality. The frames are 3 feet from the greenhouse, allowing plenty of space to conveniently handle the sash and overcoming all chance of ice or snow from the greenhouse roof falling on the glass.



Number 525—Making the greenhouse fit both your needs and your grounds—that's what good designing and planning means. Here you have it at its best. Erected for Mr. R. V. Lindabury, Bernardsville, N. J.

Three Compartment Curvilinear House

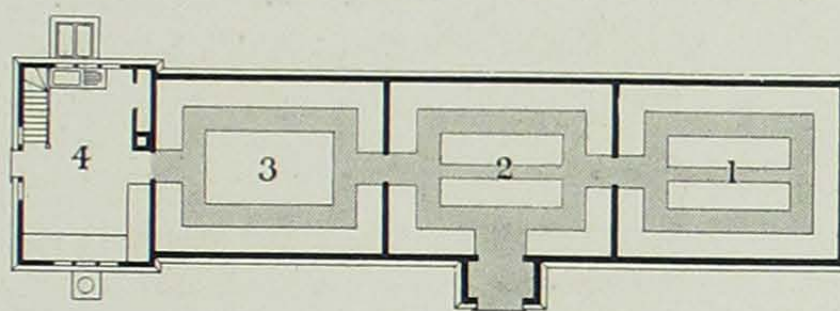
Number 525

THREE compartments give you a flexibility in growing a wider range of plants that cannot be ignored.

In a way it is somewhat like the difference between four and six cylinders in an auto.

It gives you always, a compartment each for roses and carnations and an extra one for general plants, vegetables or fruits.

A good length for such a house is 75 feet, giving three 25 foot divisions.



Plan Number 525

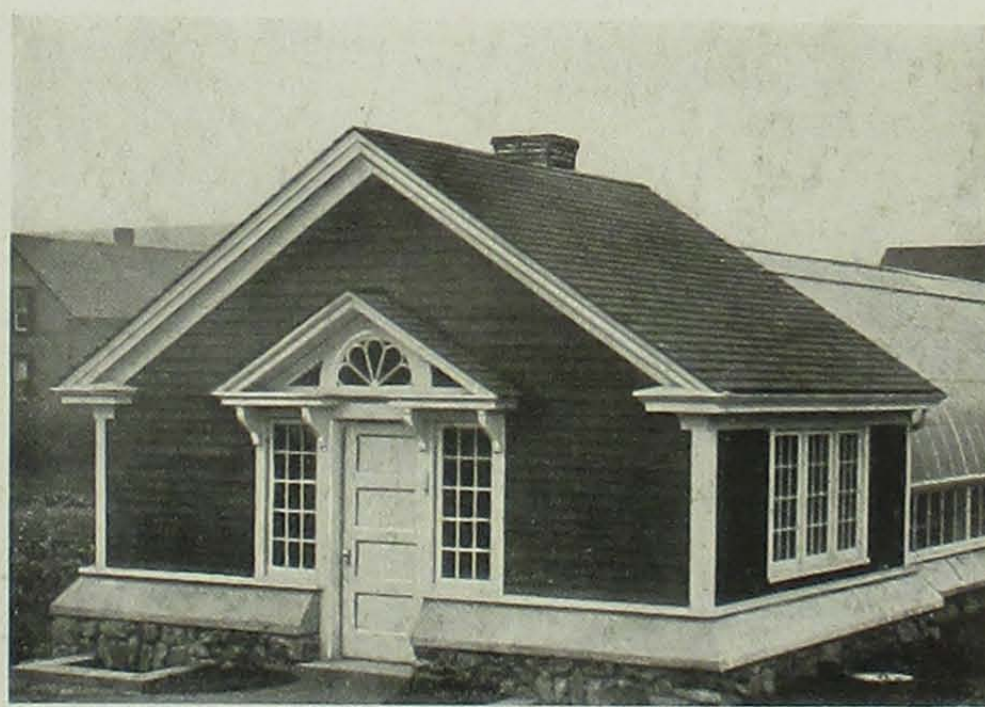
Just as a suggestion, you might use compartments 2 and 3 for flowers or vegetables; and number one for a grapery. For definite facts about graperies, see pages 42 and 43.

Such a length gives rather a long, unbroken roof line, that can effectively be overcome by adding a side entrance or vestibule, as in this case.

A good variation of the plan which would give you a small compartment for ferns, orchids and like semi-shade loving plants, would be to place the work room at the back and join it to the greenhouse by a connecting house. See the plan on page 21.



Number 525-A—This side vestibule of colonial design adds an attractiveness to the house well meriting its cost. Besides they are a convenience.



Number 525-B—Note the harmony in design between the work room and vestibule. These details do not escape our designing department.



Number 526—The ornamental curvilinear roof portion hides the less attractive parts of the layout at the back. A good example of putting the best foot forward.

A Nature Chapel

Number 526



Number 526-A—What if Easter Morn does break gray and dreary; there's your "Nature Chapel" filled with sunshiny tulips and other joy giving blooms.

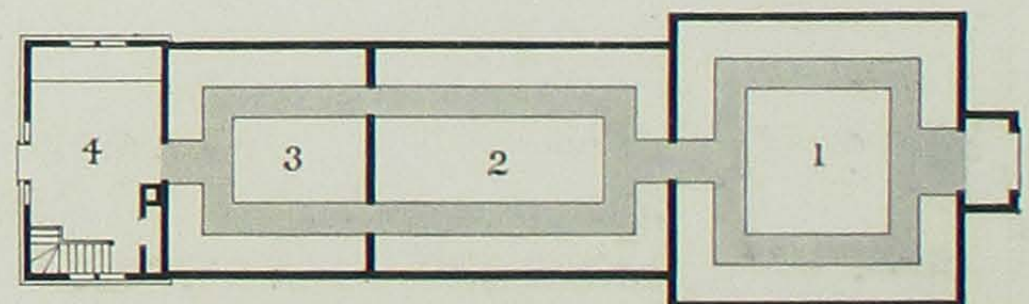
"A Nature Chapel," that is what its owner most fittingly called it.

Imagine having just such a big glass case filled with plants and flowers, so that you could look out into it, from your living room windows. Isn't that a picture of perpetual pleasure to conjure with?

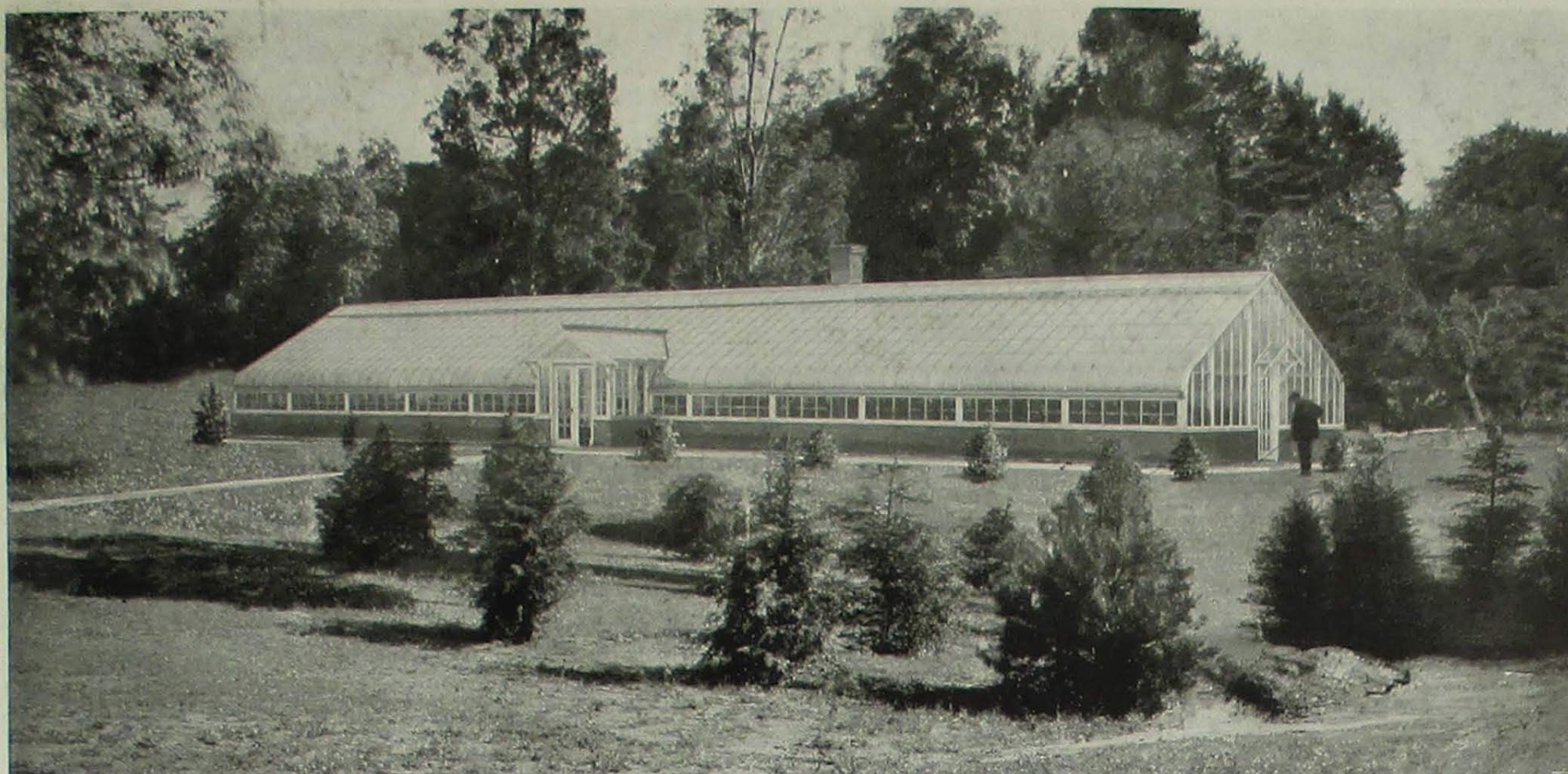
What an air of hospitality there is to that good generous sized vestibule entrance. How it allures you within.

Withal, notice the almost severe simplicity of the design; yet how restfully pleasing.

After all isn't that the real goal of all lastingly satisfying architecture?



Plan Number 526—1. The Nature Chapel. 2. General plants. 3. Roses. 4. Work room.



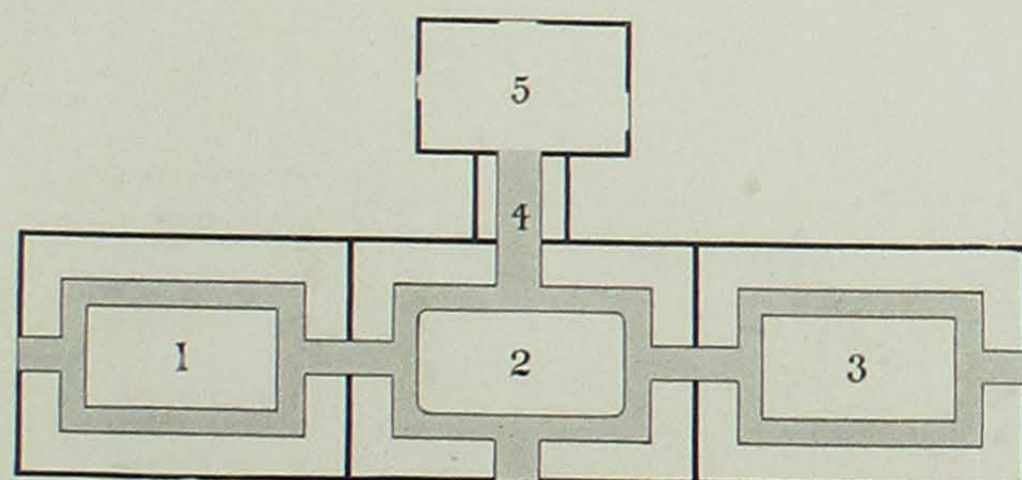
Number 527—With doors in each gable, and an entrance to the center compartment from the vestibule or through the work room; all parts of the house are conveniently accessible.

Four Plot Glass Garden

Number 527

HERE, indeed, is a practical plan. Practical to heat. Practical to work. Practical from a producing point. It is 100 feet long. That gives you three compartments each about 33 feet, which allows a goodly amount of growing space.

The work room in a central location at the back, is joined by a connecting passage, which is just the thing for ferns, orchids and the like. It seems the general custom of gardeners to use the centre compartment for either semi-tropical plants or as a show place for their blooming plants in pots.



Plan Number 527



Number 527-A—Boston ferns hanging in pots, and nasturtiums climbing across the roof. What a joy spot.

A Parallel Layout

Number 528



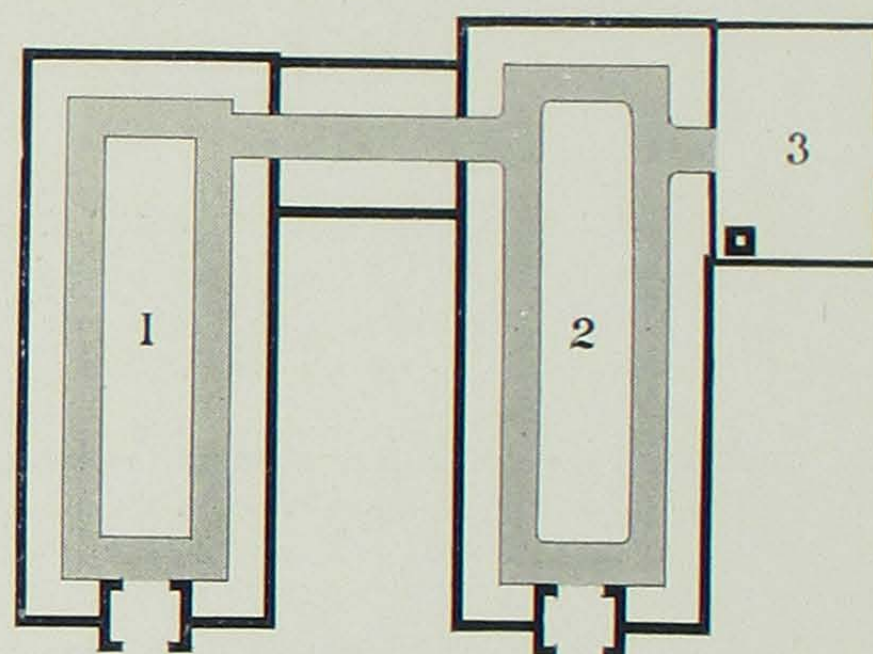
Number 528-A—Don't think that you must give up a whole compartment to vegetables. Grow some right along with flowers, that thrive in the same temperature. Here is a row of tomatoes, taking up hardly any room along the back of the bench, while in front are primulas in pots.

WHERE two connected houses are desired for locating in some certain square of ground, a parallel layout like this one works out to splendid advantage.

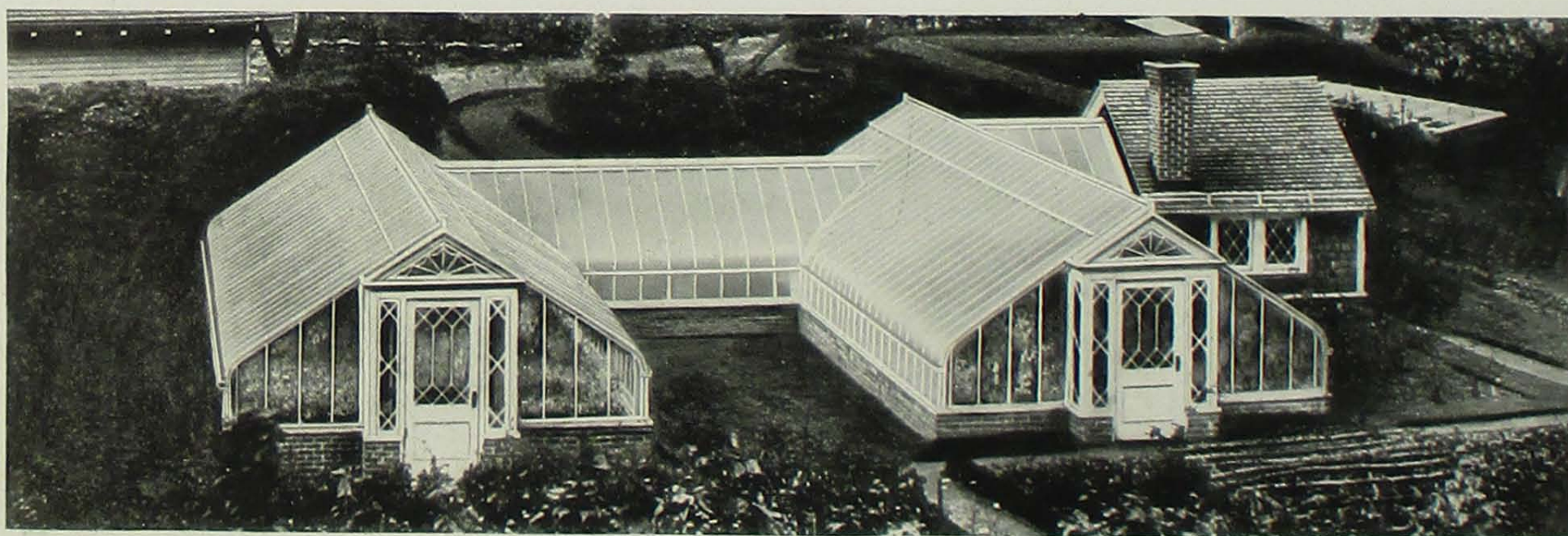
It happens that this particular one, located in the very midst of a walled-in-garden, was laid out to occupy the space between the garden drive and main walk. The result is certainly charming.

The small house connecting the larger ones, gives additional valuable space, and makes it possible to place the houses wide enough apart, so one will not shade the other, which is a highly important consideration in successful greenhouse results.

The semi-vestibules in the gables are unusual and ornamental features well worth the additional expenditure.



Plan Number 528



Number 528—From an elevation on the opposite side of the garden this is the view you get of Miss L. Y. Cockcroft's charming greenhouses at Saugatuck, Conn.
Charles Barton Keen, Landscape Architect.

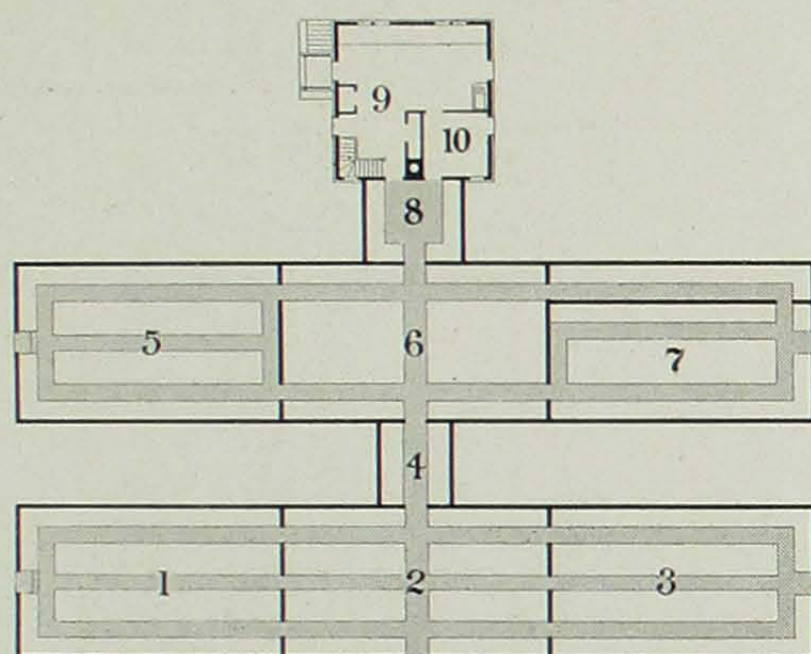
And Another Parallel One

Number 529

It is exceedingly interesting that several years after we erected these houses at Plymouth, Mass., Mr. Jordan had us take them down and ship to Wenham, Mass., where they were re-erected on his farm.

Constructed as our greenhouses are, in sections, each having a complete iron frame, it was not a difficult task to unbolt the various members and take the houses down section by section—their re-erection being simply a reversal of the operation.

No particular outlay was made to make these houses very ornamental as they are somewhat removed from the residence, and intended solely for practical purposes. There are nine compartments in all, devoted to flowers and vegetables which are supplied in abundance to the summer residence part of the year, and the rest of the time shipped in boxes every morning to the city.



Plan Number 529



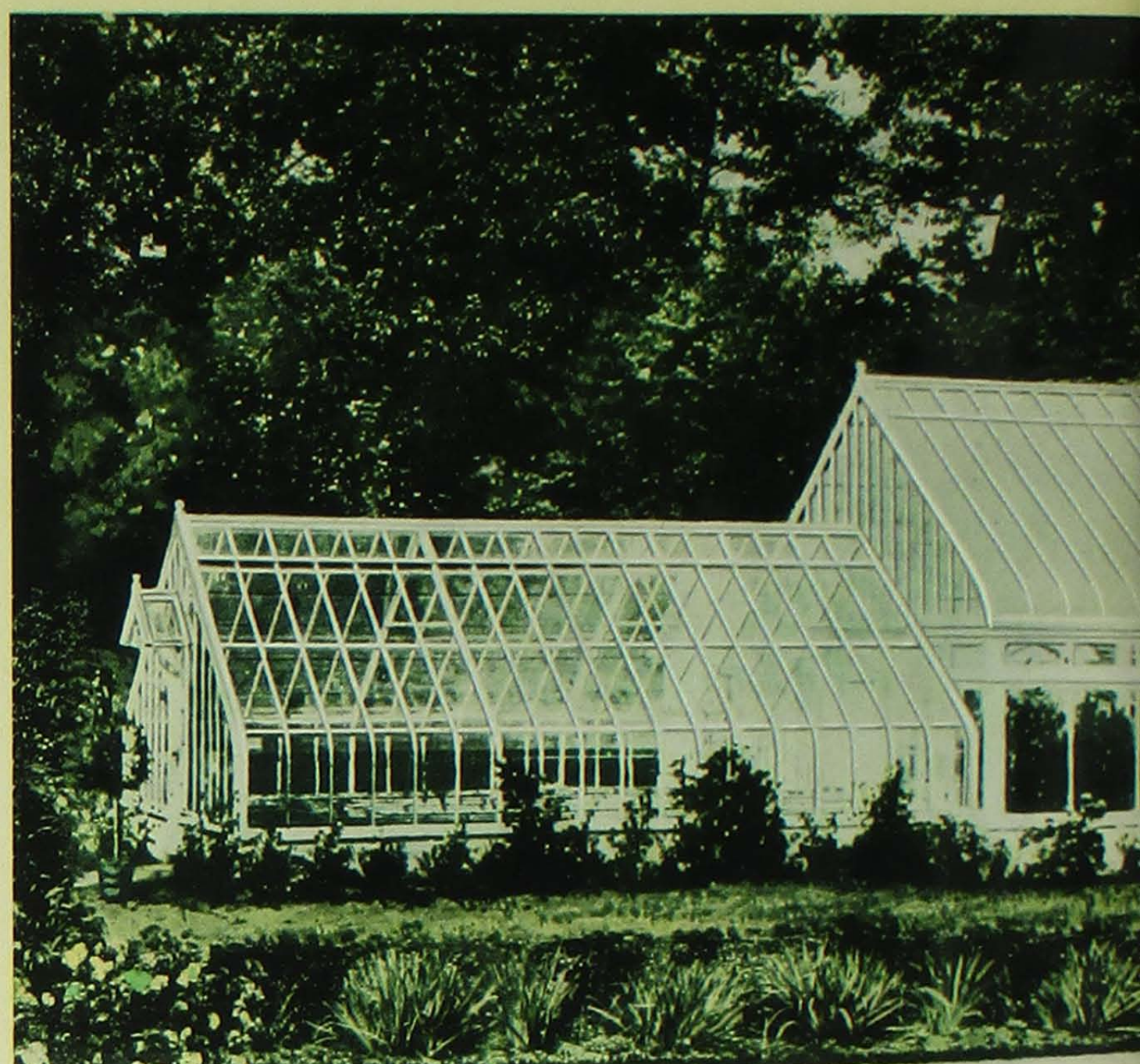
Number 529-A—One of the things you may have lost sight of as possible in one of your compartments, is the forcing of shrubs into bloom. Golden Bell, Prunae, the Spireas and such favorites are readily responsive to such treatment.



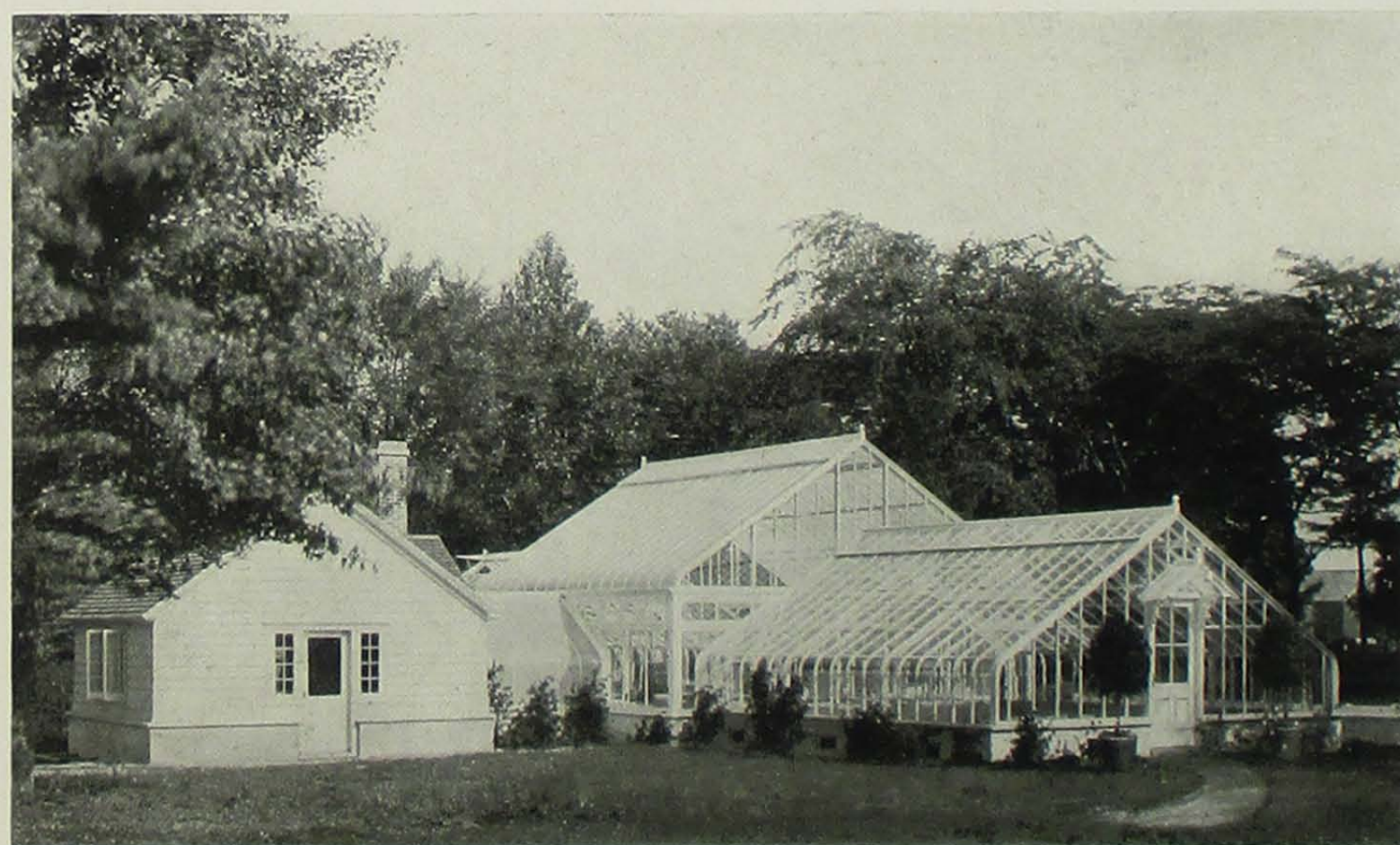
Number 529—This photo of Mr. Eben Jordan's range at Plymouth, Mass., was taken just before it was taken down and removed to Wenham, many miles by railroad.



Number 530-A—The right hand wing house is a full-fledged vegetable garden filled in part by cauliflower. A greenhouse makes it possible to have snowy heads of a delicious creaminess that are far and away superior to outdoors grown.



Palm House and Wings—

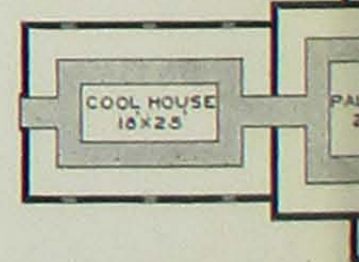


Number 530-C—Standing here, you get a comprehensive view of practically the entire layout. A larger view of the work room is shown on page 71, Number 622.

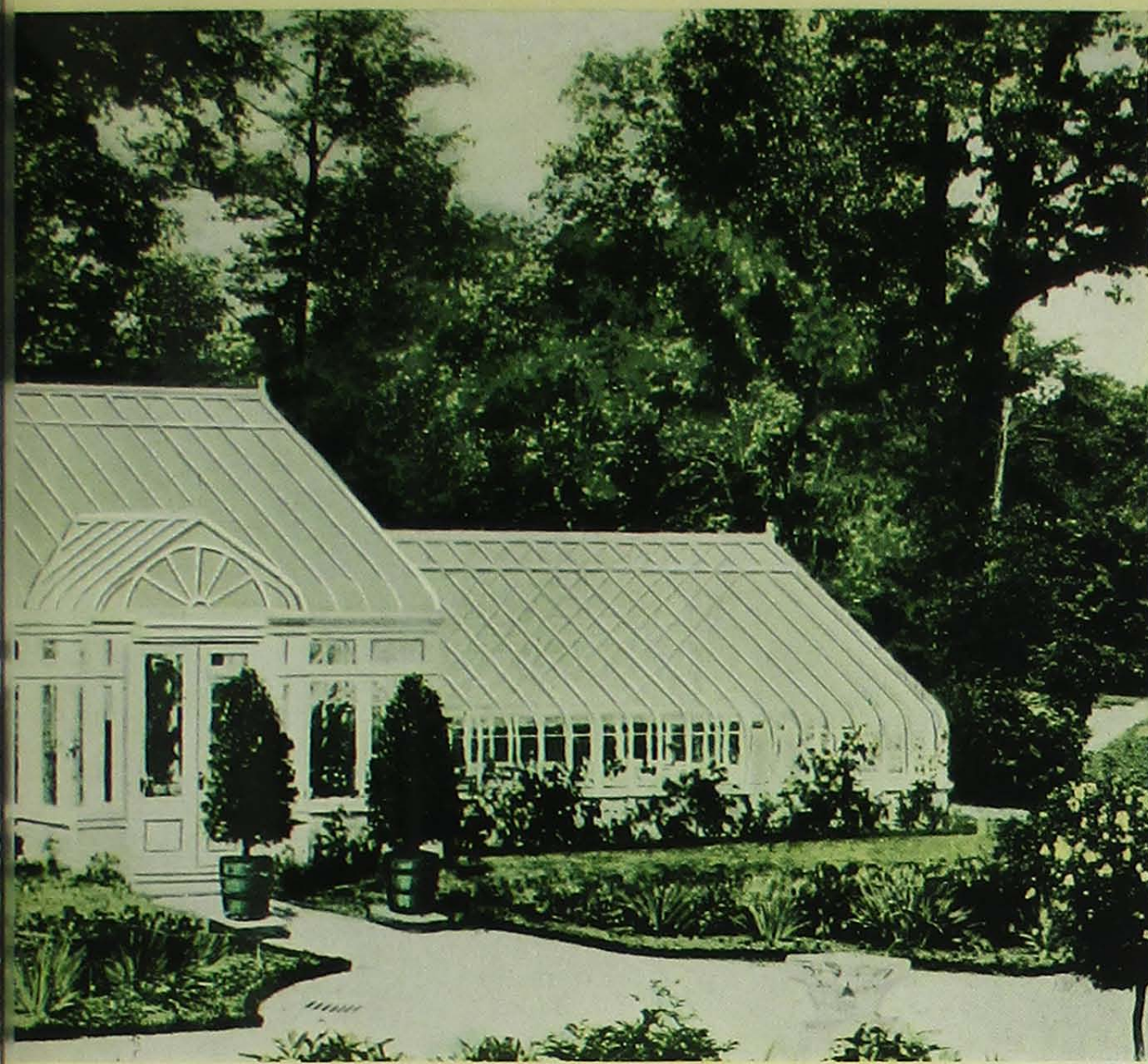
THE layout arrangement of this snug little range is one of our best. The palm house, placed as a central feature, with the two smaller wing houses, gives good architectural proportions.

The curved eaves in their graceful lightness add much to the attractiveness.

The shingled work room is particularly good, because it was made fittingly subordinate to the houses, and is



Plan Number 530—It would make a perfect itself. We can quote likewise the



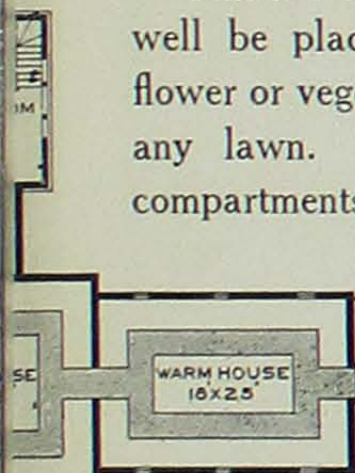
Number 530-B—One year the right hand wing house was filled with old-fashioned flowers and a most interesting collection of flowering plants in pots.

Curved Eave—Even Span

530

free from expensive elaboration. The connecting house between it and the palm house is 10 feet wide and about 6 feet long, making a fine little two bench compartment for orchids, ferns or propagating purposes.

This is a scheme which could well be placed in a formal flower or vegetable garden or on any lawn. The size of the compartments can be lengthened or widened if desired, keeping the same perfect proportions of the larger scheme.



er wing of the plan little greenhouse by it built anywhere, palm house.



Number 530-D—We were glad to secure this photo before the structural beauty of this center house was obstructed by the taller palms.

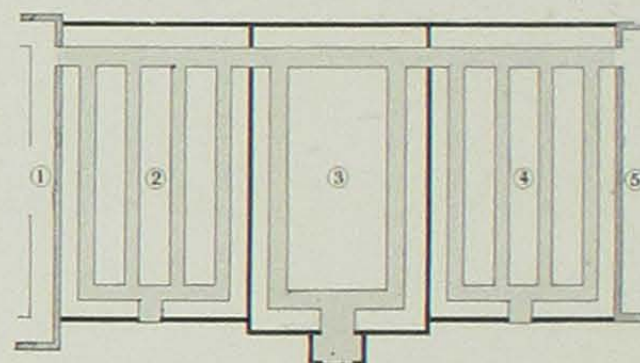


An Unusual Palm House Linking

Number 531

THIS arrangement of the palm house with directly connecting parallel houses is altogether unusual. It was necessary here to make it fit compactly between buildings on either side.

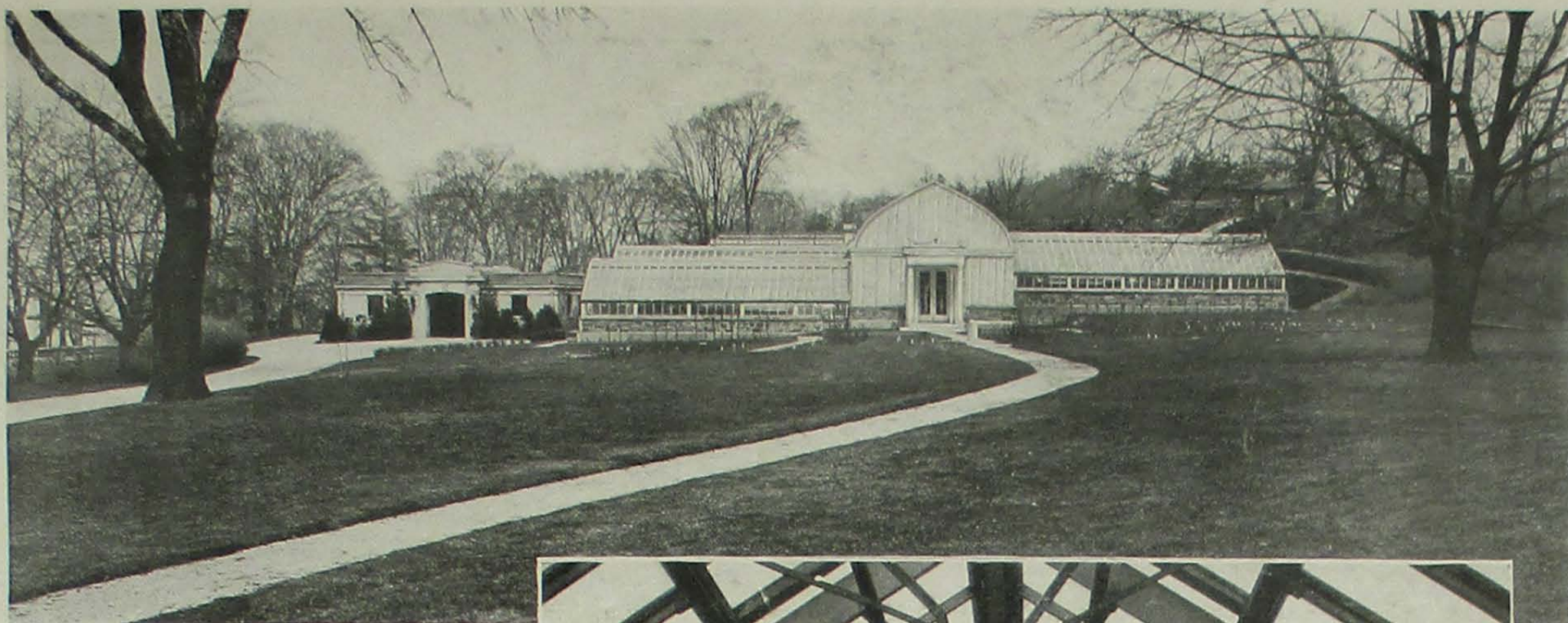
At the right is the brick work room of goodly design, while at the left is just a glimpse of the enclosed swimming pool, with bowling alley, billiard room and gymnasium attached. Heat for the "Pleasure-drome" group is obtained from the greenhouse heating system.



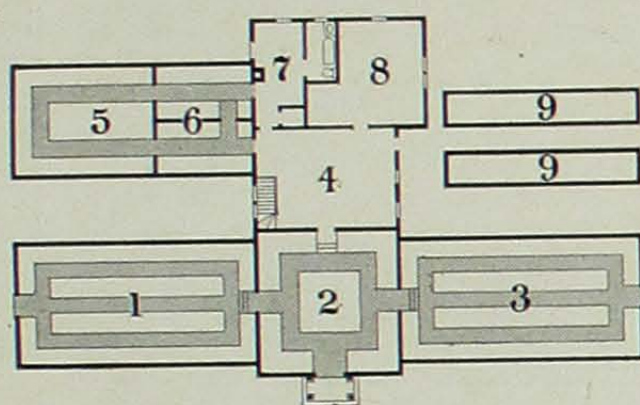
Plan Number 531



Number 531—This decidedly unique group is situated at the very base of the Rocky Mountains, on the grounds of Mr. A. Coor, at Golden, near Denver, Colorado.



Number 532—Erected for Mr. G. W. Perkins, Riverdale, N. Y.



Plan Number 532

Interesting Group Development

Number 532

THIS palm house of similar design to the one on the facing page, is flanked by houses running lengthwise, instead of sideways. From a point of balanced effect, it is superior.

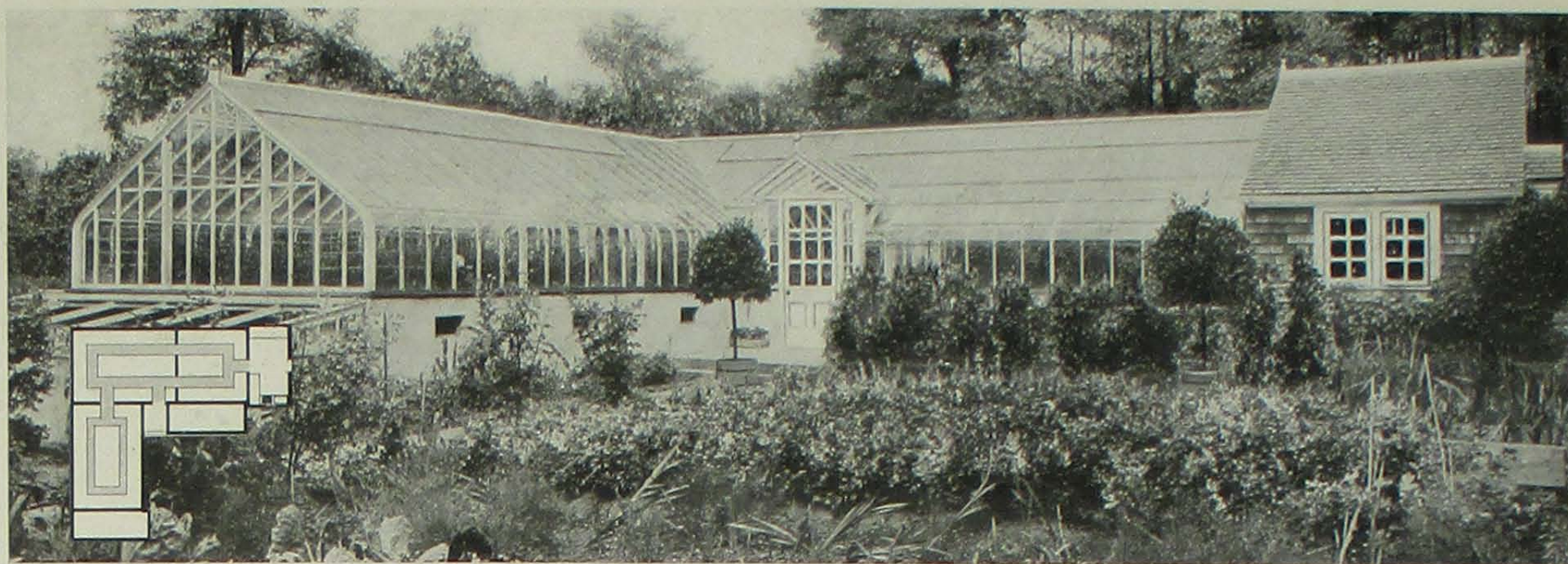
Such a layout would be complete with the front houses 1, 2, 3 and work room Number 4.

Then later, houses 5 and 6, with the office and man's room, 7 and 8; and the frames, 9, could be added.

In fact there are many practical variations that we could suggest.



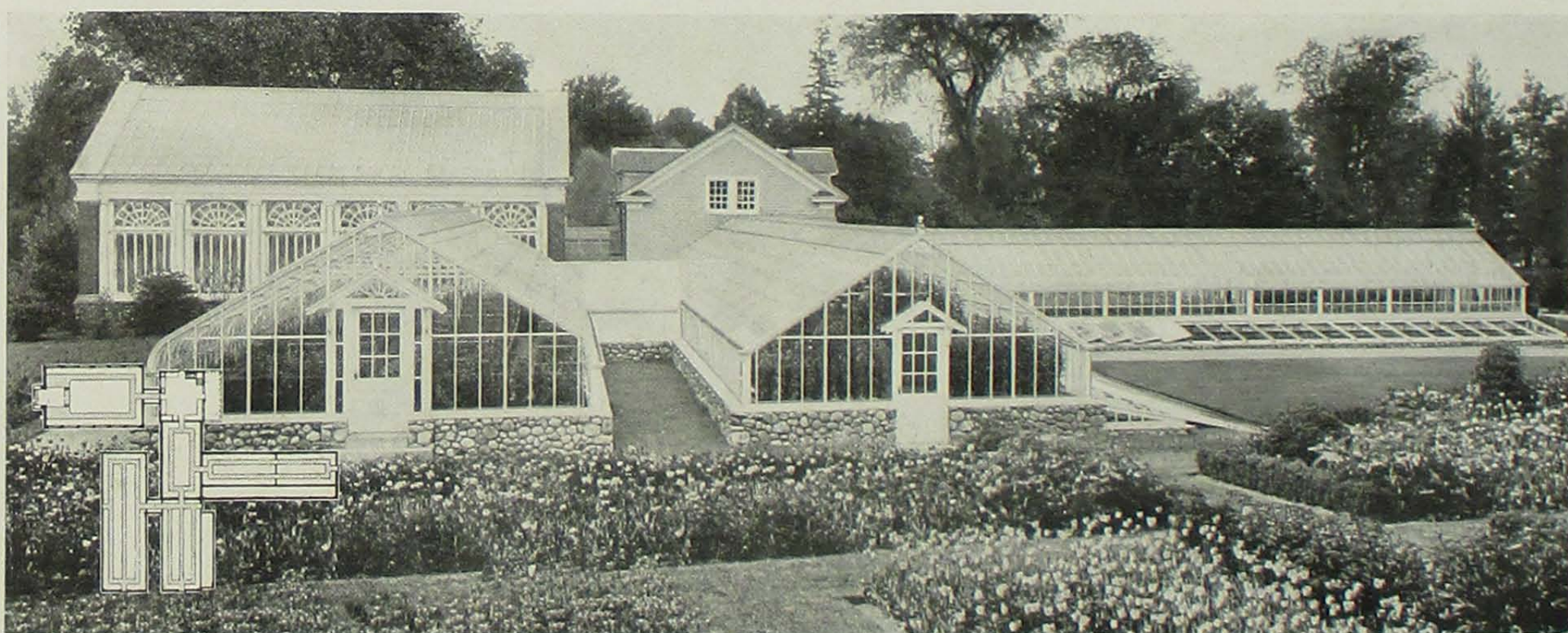
Number 532-A—When all outdoors is drab and dreary—what a cheer spot to have always awaiting you.



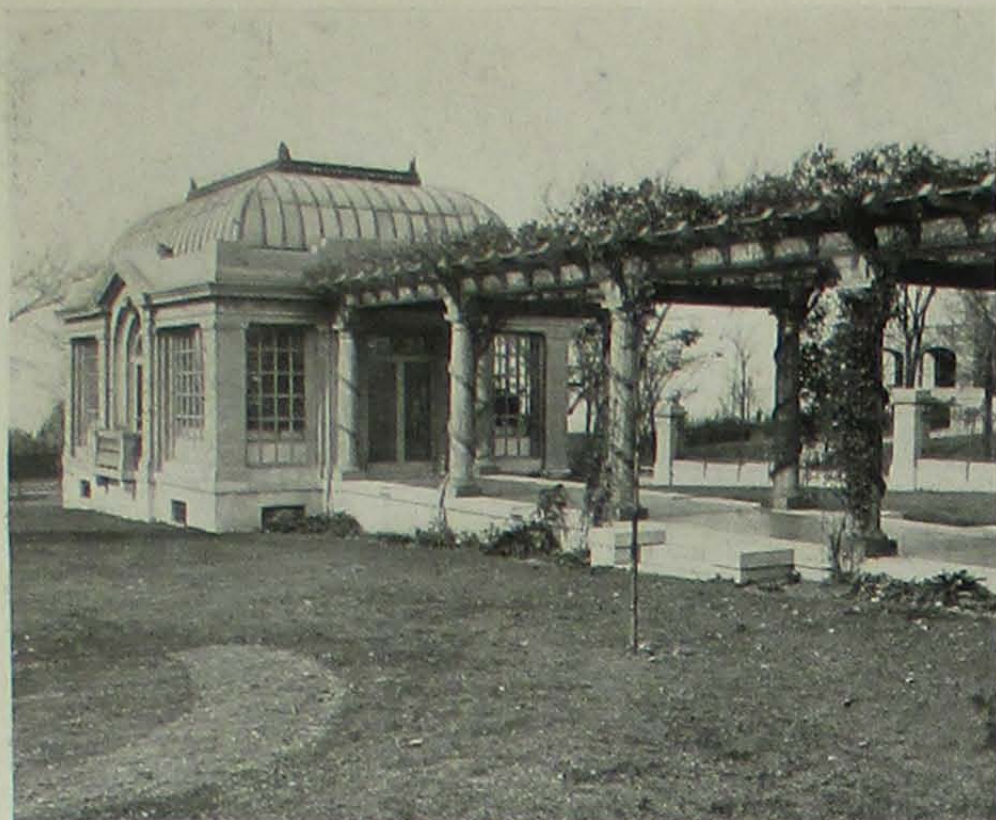
Number 533—This L-shaped house of Mrs. Henry Darlington, Mamaroneck, N. Y., just fits into the space allotted to it. Carefully conforming the plan to the site conditions, is one of the vitally important features of greenhouse success. One that is all too often given scant consideration.



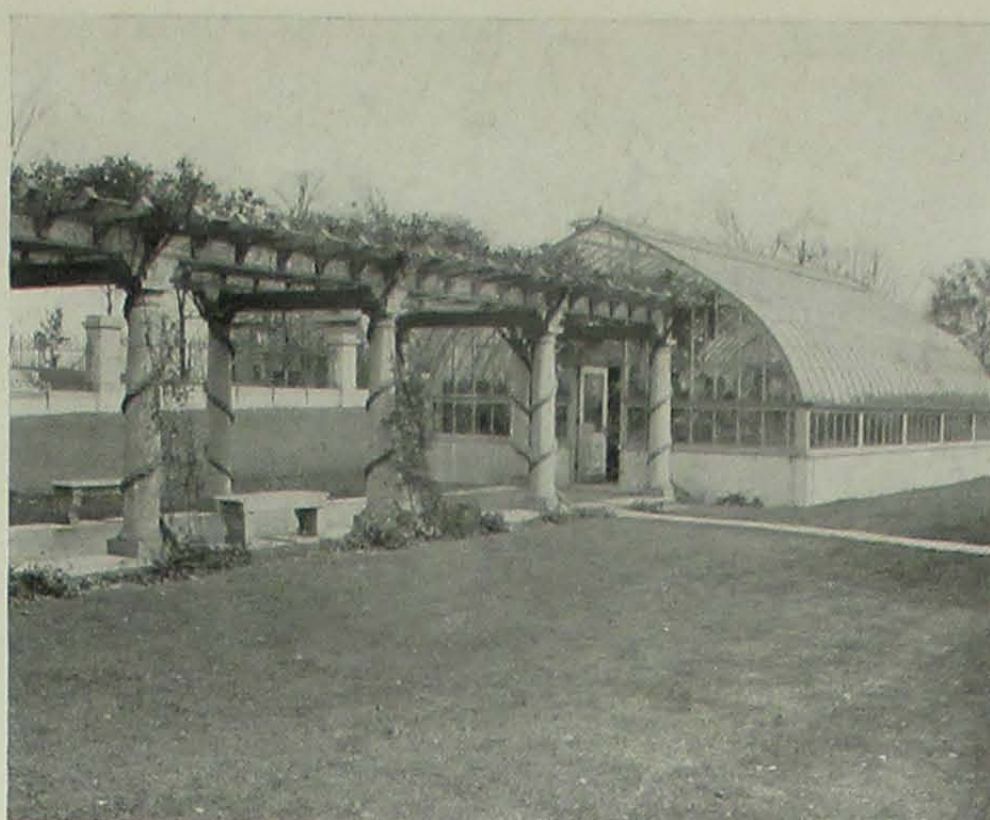
Number 533-A—This veritable "garden within a garden," at Glen Cove, L. I., is owned by Dr. J. C. Ayer. It is just another example of planning to best suit the location both from a point of attractiveness and practical productiveness.



Number 533-B—This group of glass gardens, erected for Harry Payne Whitney on his estate at Manhasset, L. I., is an interesting example of combining the ornamental with the thoroughly practical. The palm house in all its classic temple-like dominance, can be seen on its hilltop location for miles around; like a modern Grecian Acropolis, dedicated to the Goddess Flora, as it were.



Number 534-A—The palm house at Mr. R. A. Long's Kansas City place.



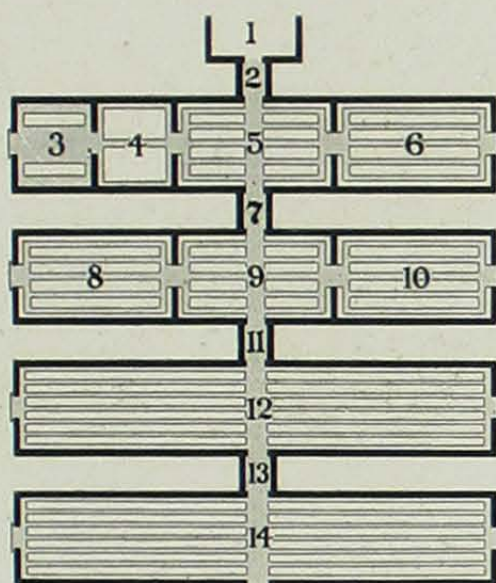
Number 534-B—The plant house where a general assortment is always kept.

A Practical Combination of Town and Estate Greenhouses

Number 534

ON the town house grounds of Mr. R. A. Long, at Kansas City, is a charming vine covered pergola, at either end of which is a palm house and a general plant house.

Out at Lee's Summit, at Long View, Mr. Long's country place, we first erected two straight away, plain growing houses for producing an abundance of fruits,

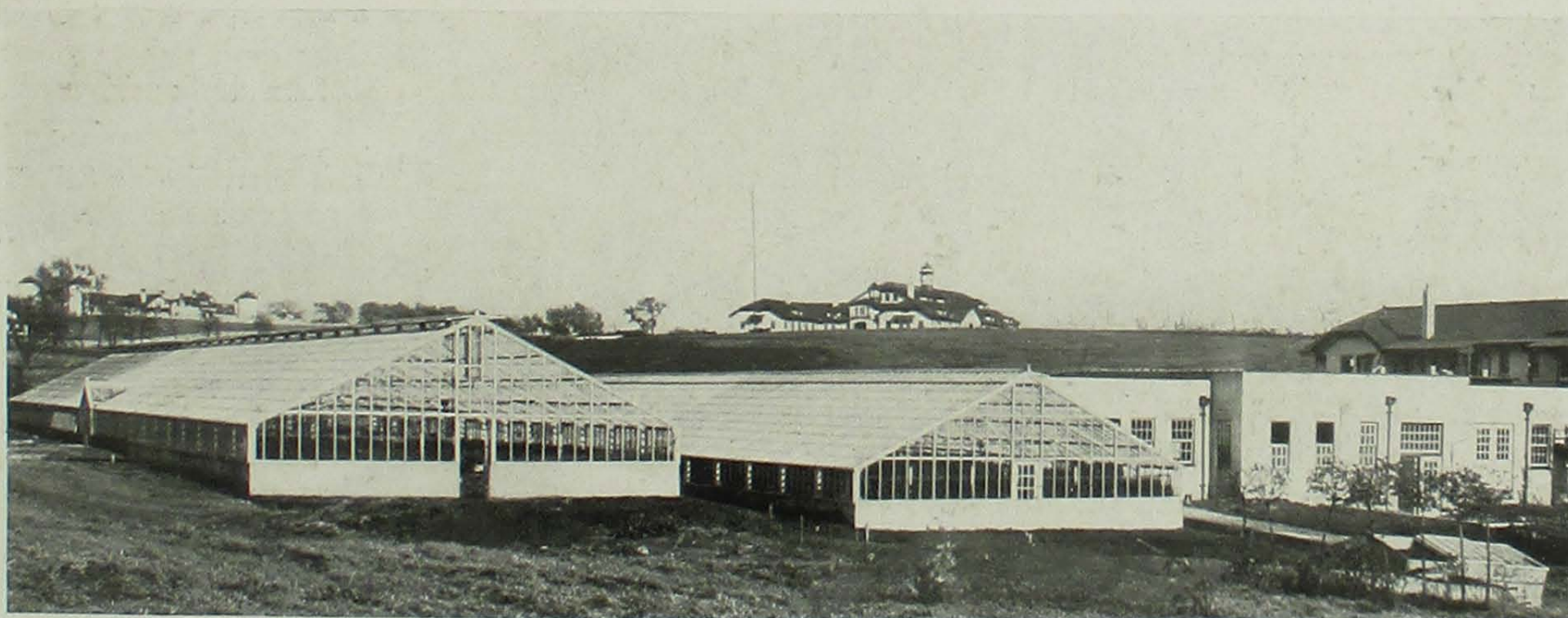


Plan Number 534—Compartments 2 to 10 were first erected. Then followed 11 to 14.

vegetables and flowers for both the town and country houses.

Later, we added two more houses of the same size.

This is an instance where the purely utilitarian productive side was of first importance. It holds a thought well worth your very careful consideration.



Number 534—Two of the houses at Long View, the Long estate at Lee's Summit, Missouri.



Number 535—As it looked on a glorious day in October.



Number 535-A—The way it appears from the second story of the residence.

An Interesting Instance

Number 535

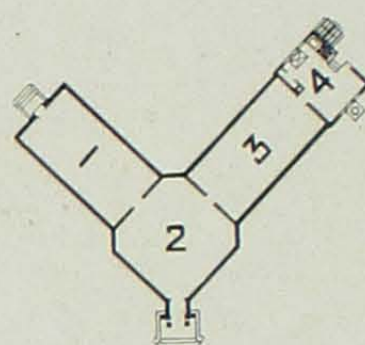
EVERY once in a while we have an opportunity to design a greenhouse group, to especially meet some inflexible existing condition.

To a certain extent this is exactly such an instance.

There were several out of the way places on Mrs. F. L. Potts' grounds at Bryn Mawr, Pa., where a group of glass enclosed gardens could admirably have been located; but it was her desire to have these gardens as readily accessible and as much in view, as the outdoors garden.

With an attractively designed group, this was entirely logical.

From one of the residence outlooks, there was a rather unattractive building on a neighbor's property; and it was Mrs. Potts' happy thought to obscure it with the glass garden.



Plan Number 535

As a result our designing department created this decidedly unusual plan, having a domed-roof palm house, with cut-off corner, as the central obscuring feature; and two adjoining houses, forming a V-shaped layout.

The effect is that of an immense fan spread out.

The result is eminently satisfactory as a screen; as a practical producing group; and as an ornamental feature of the grounds.

The palm house, with its unique corner vestibule, is a distinctive feature in which we take no little pride.

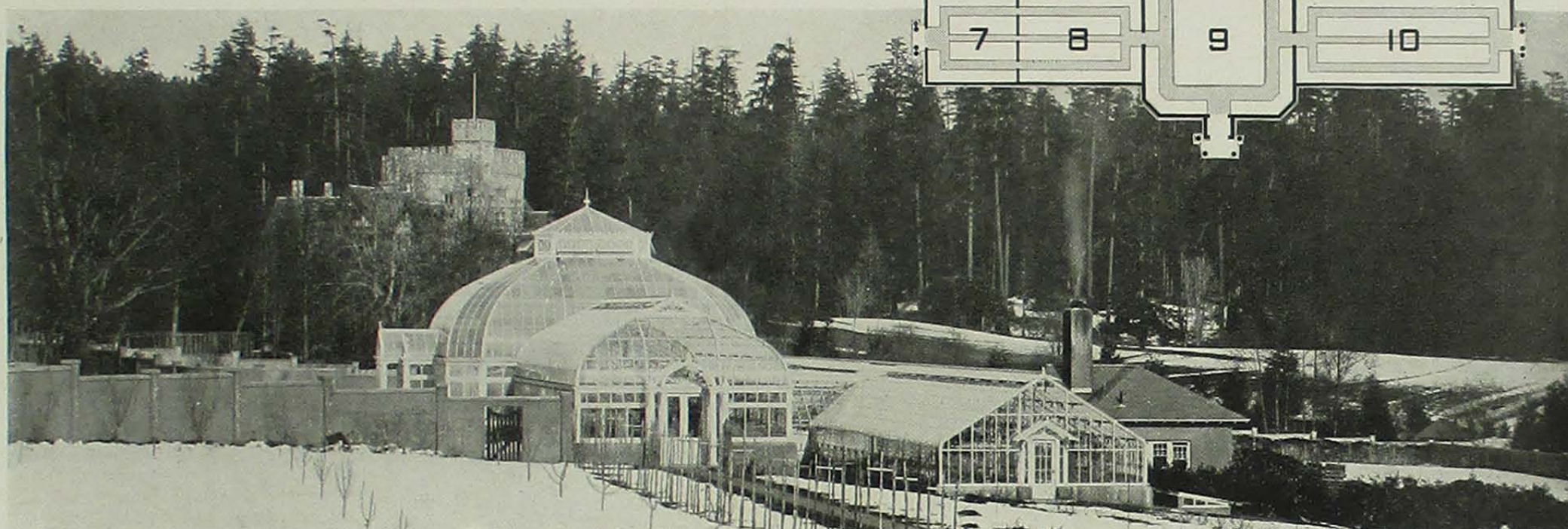
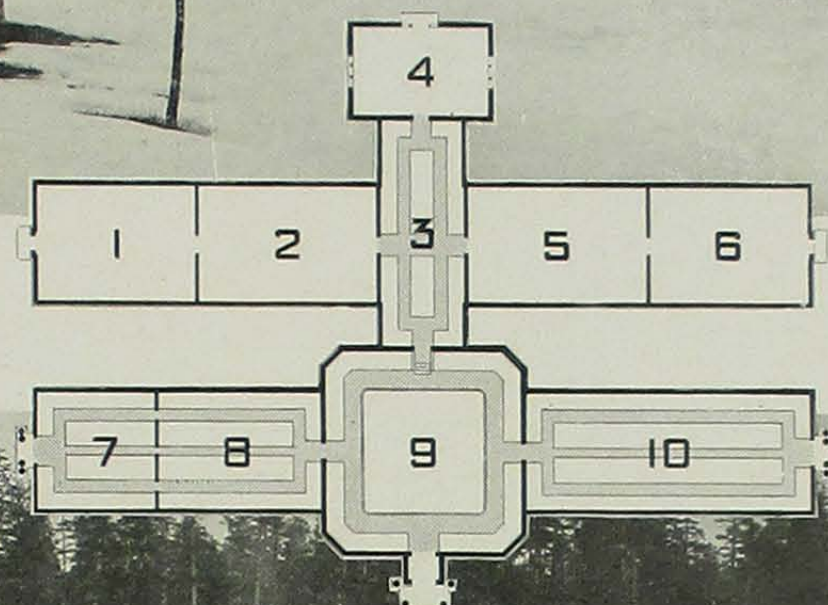
In all our representatives' photograph folios, this subject is given a foremost position. Whenever shown, it seldom fails to excite a lively interest. Perhaps some such treatment would exactly fit your needs. Shall we send a representative?



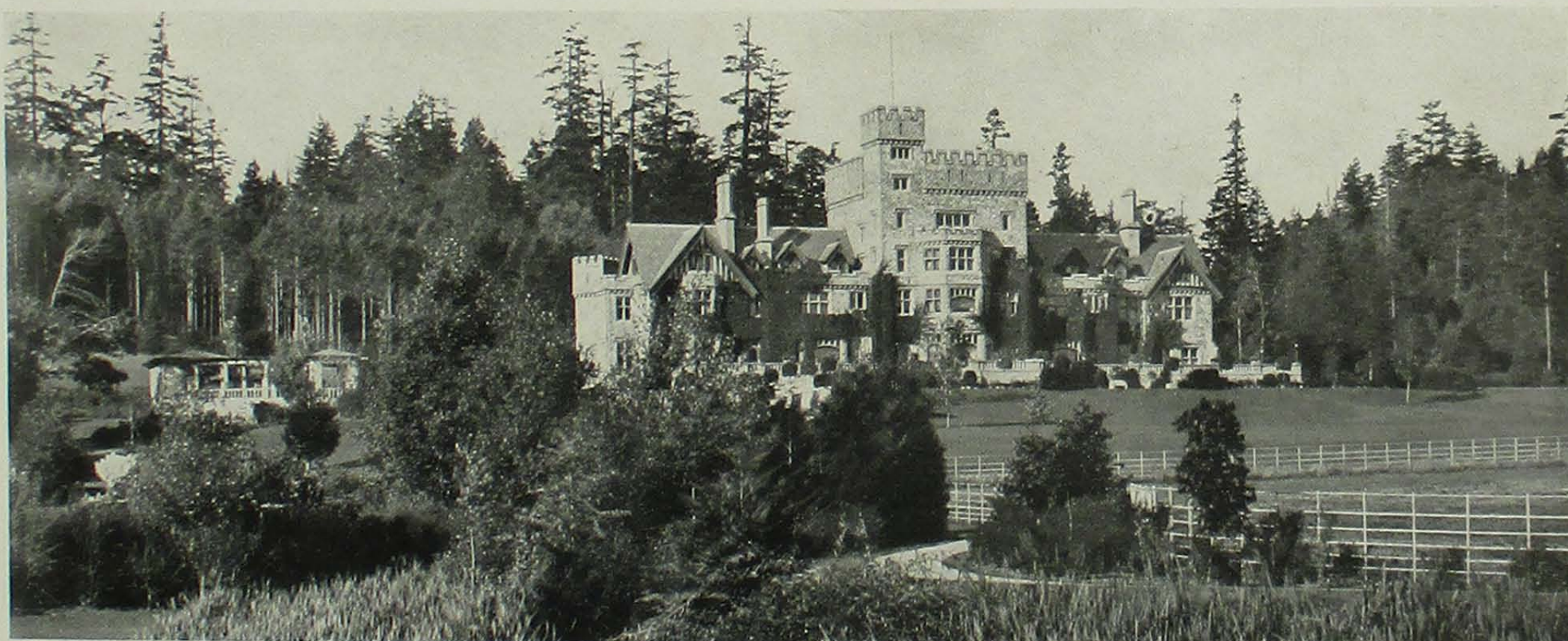
Number 535-B—Vestibule design.



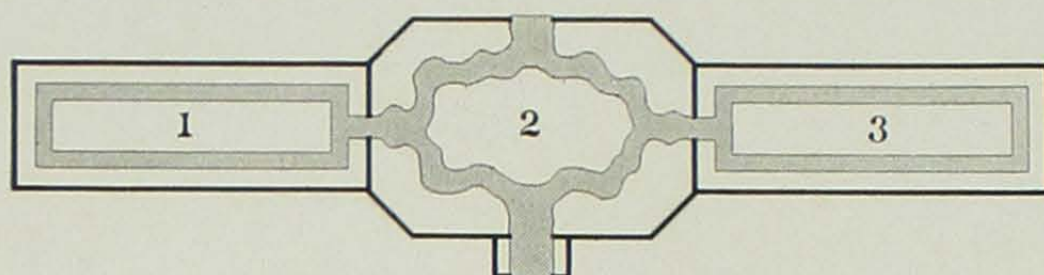
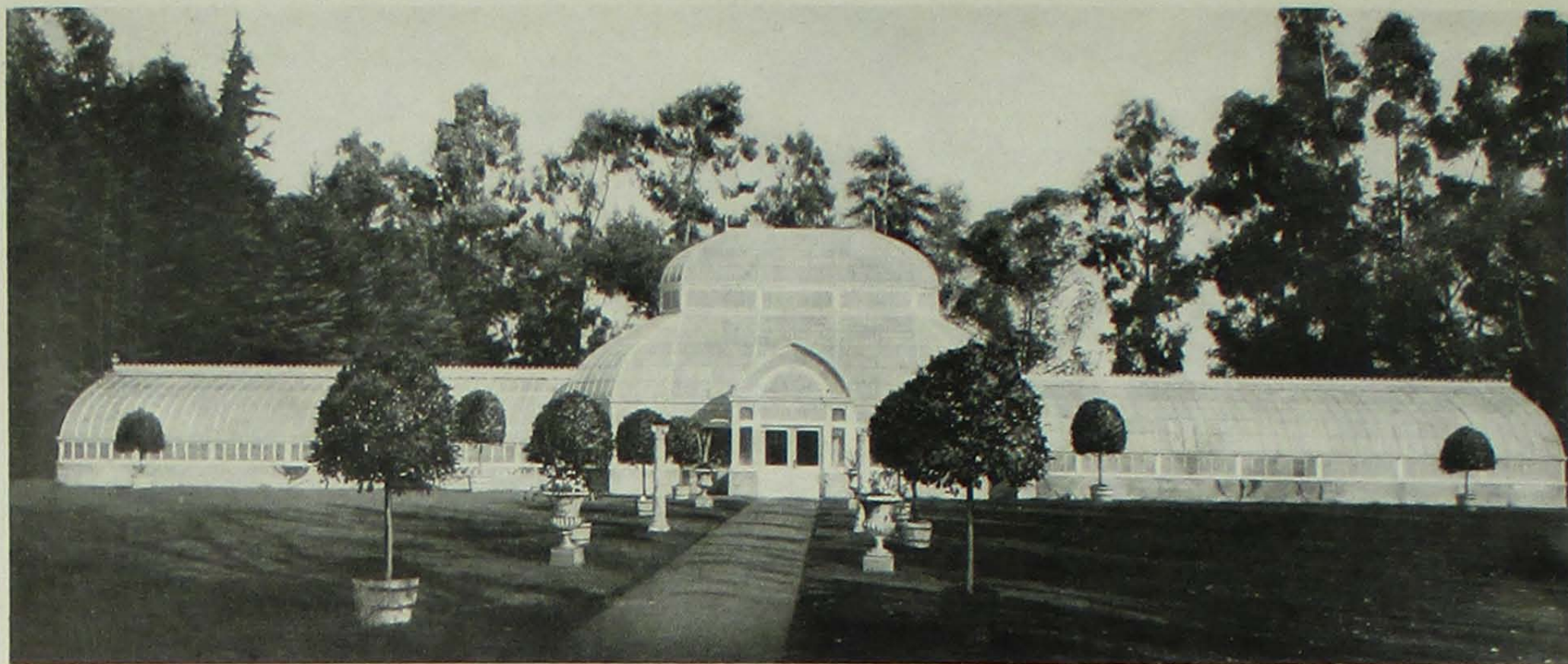
Number 536—One of Canada's most pretentious private estate groups, erected for Lord Dunsmuir, at Hatley Park, Victoria, British Columbia.



Number 536-A—At first it was Lord Dunsmuir's intention to import all the materials for his greenhouses from England, but he finally awarded us the contract for the complete proposition.

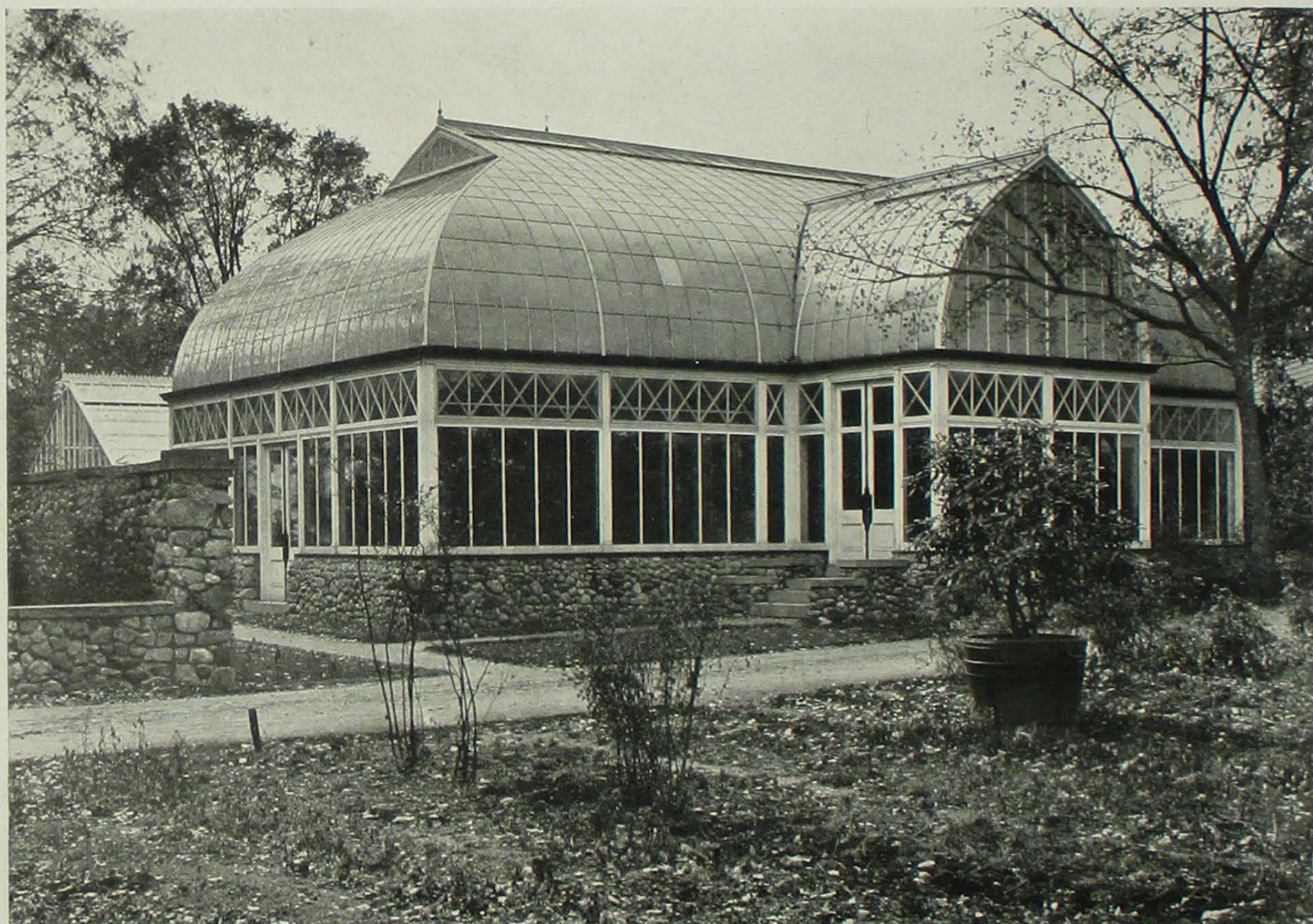


Number 536-B—The Dunsmuir Castle. Lord Dunsmuir was a former Lieutenant Governor of British Columbia.

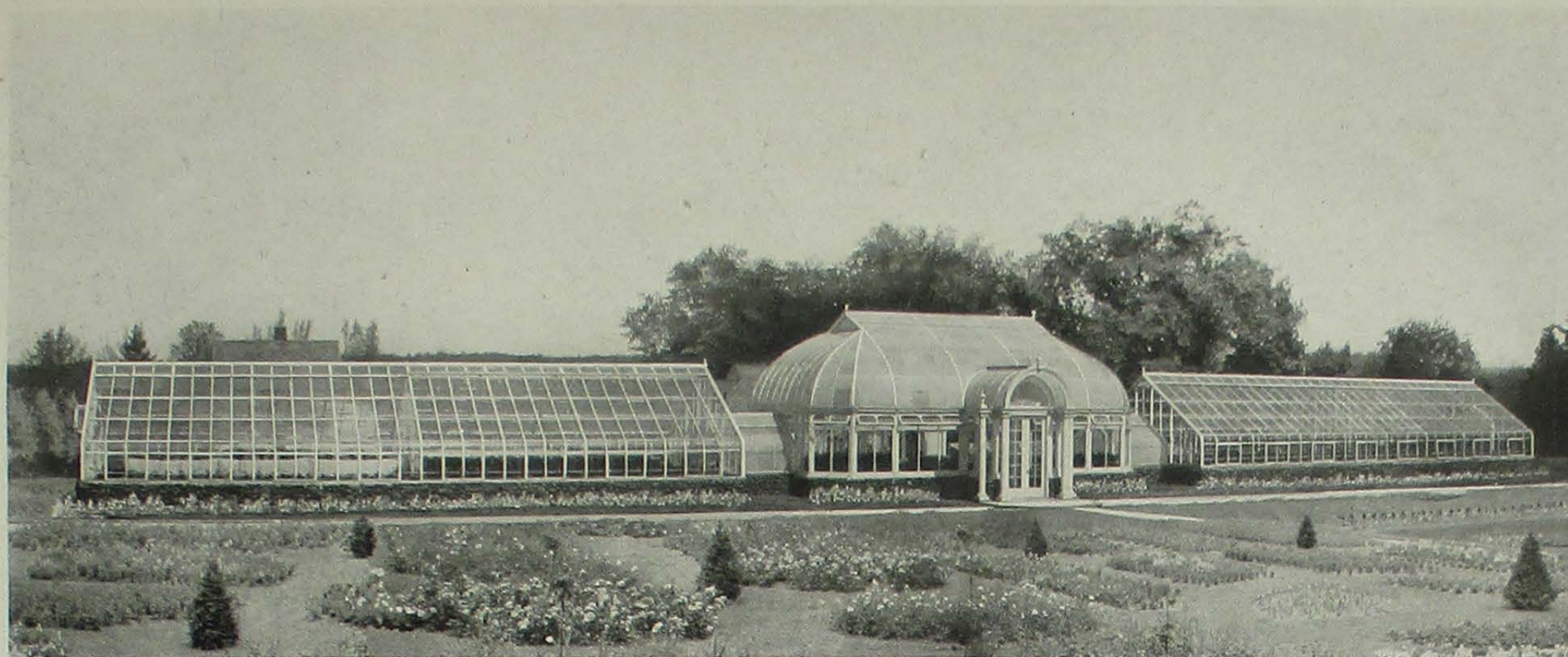


Number 537—Several years ago, Mr. J. B. Coryell, of Menlo Park, Cal., walked into our New York office one afternoon, and said he had seen our advertisement of a palm house which Mrs. Coryell thought to be an ideal tropical garden. After the usual preliminaries of sketches, plans, and so on, this is the group of houses Mr. Coryell ordered.

Plan Number 537—The palm house is interestingly laid out with natural winding walks.



Number 538—Extensive palm house erected for J. D. Rockefeller at his Pocantico Hills estate.



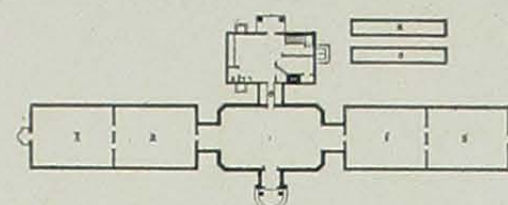
Number 539

HERE are two variant plans of the palm house and wings theme. Both are practical. Both decidedly ornamental.

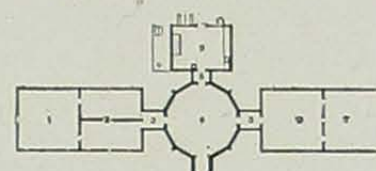
Number 539 was erected for Mrs. R. J. Reynolds, at Winston-Salem, N. C.

Number 540, for the late Thomas Sperry, at Cranford, N. J.

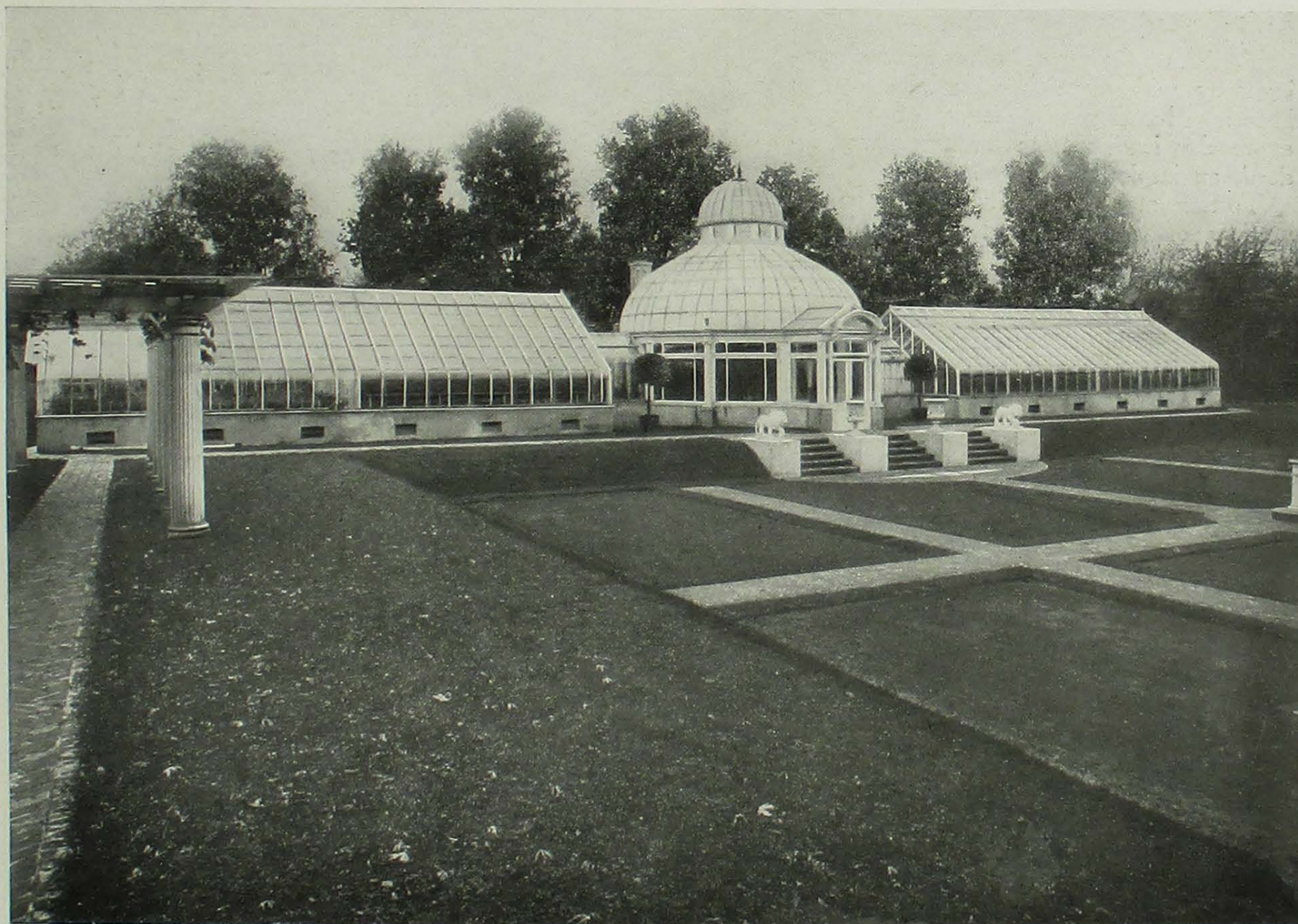
If either fits your location and needs, it can be promptly duplicated for your grounds.



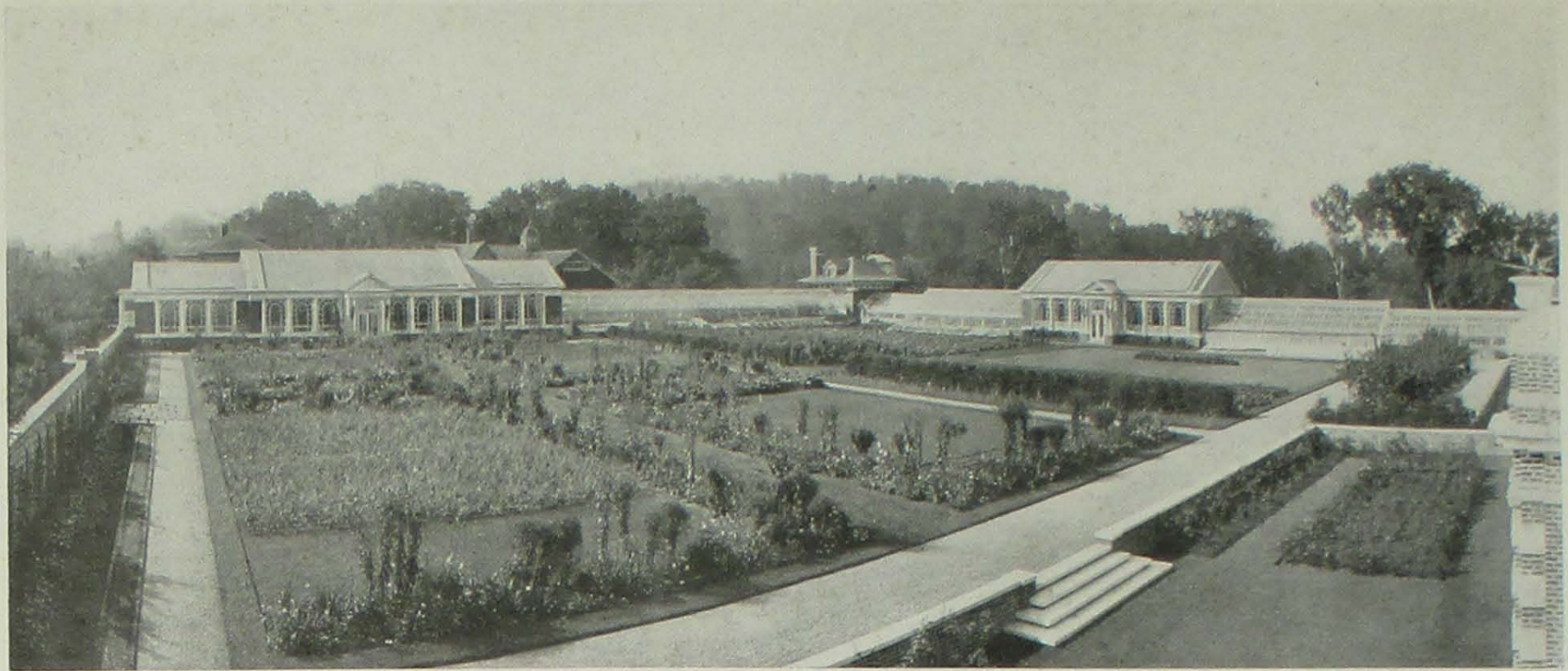
The Reynolds Plan Number 539.



The Sperry Plan Number 540.



Number 540—The twelve sided palm house is an exceptional feature in this subject. We are told it is the only one in existence.



Number 541—As you see it from the top of the formal flower garden loggia.

A Layout of Significance

Number 541

TO conceive of an outdoor garden, surrounded on three sides by classic gardens under glass, for orchids, palms, roses, carnations, tropical exotics, oranges, grapes and melons, is a masterly thing in itself.

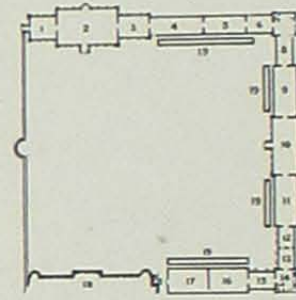
To link up the general scheme in a charming way with a neighboring lake, by an imposing landing and series of stepped approaches leading to the orangery, was, indeed, an inspiration.

To translate into a reality the glass garden portions of this dream of the Landscape Architect, Feruccio Vitale, was our privilege.

Of its like there is nothing to equal it in this country. In it, the genius of Vitale has successfully mingled the classic feeling of Athens with a memory of Venice, and choicely linked them to a sequestered garden gem of sincerest interpretation.

Surrounded by fine old stately trees, and an immediate background of the Berkshire Hills, lies this rare possession of Mr. W. H. Walker, Great Barrington, Mass.

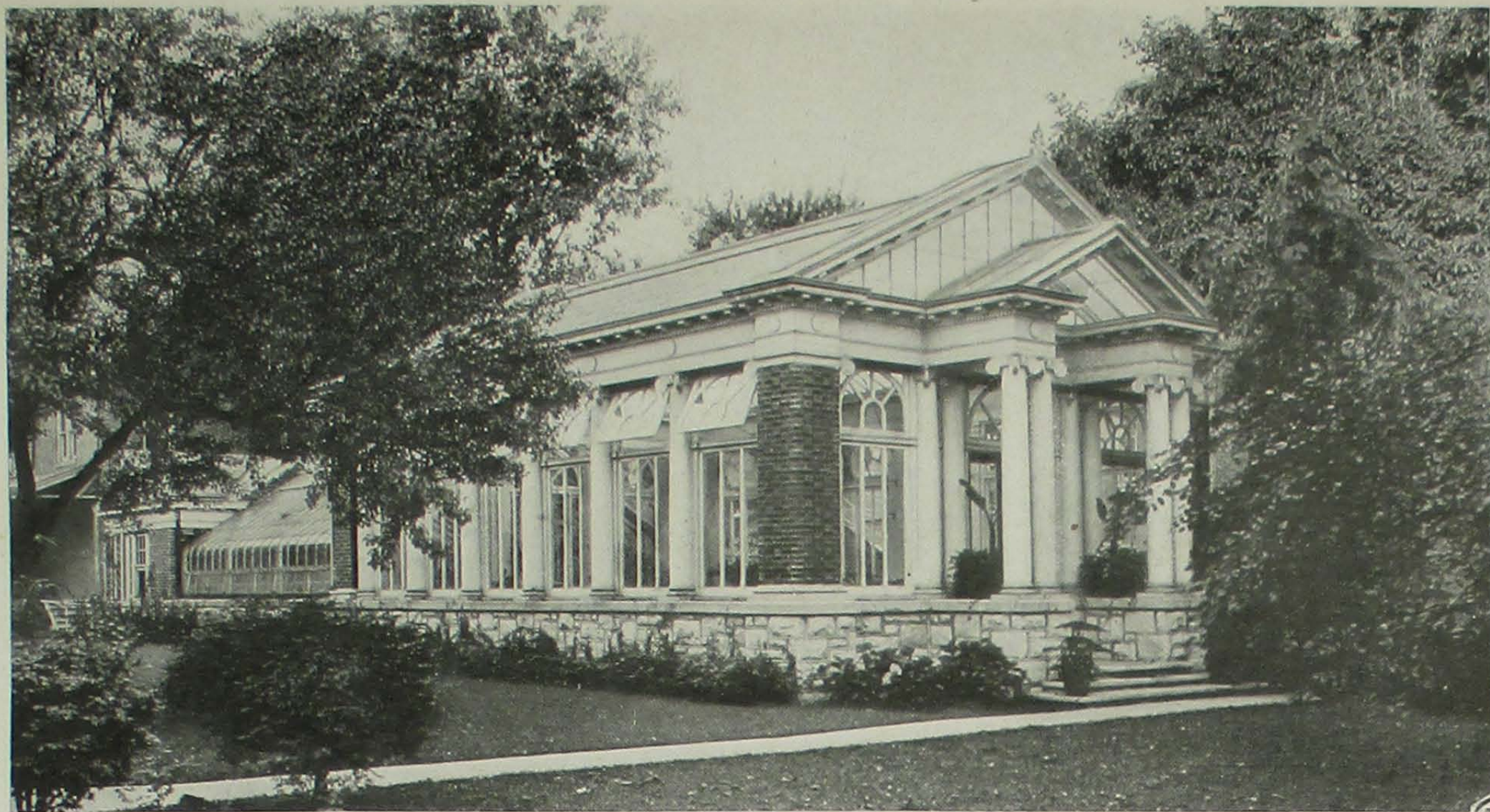
See page 62 for interior of the palm house.



Plan Number 541—Showing the relation of the garden court and surrounding glass gardens.



Number 541-A—The opposite side looking towards the orangery and loggia.



Number 542—Temple to Flora, designed especially for Mr. W. P. Worth, Coatesville, Pa.

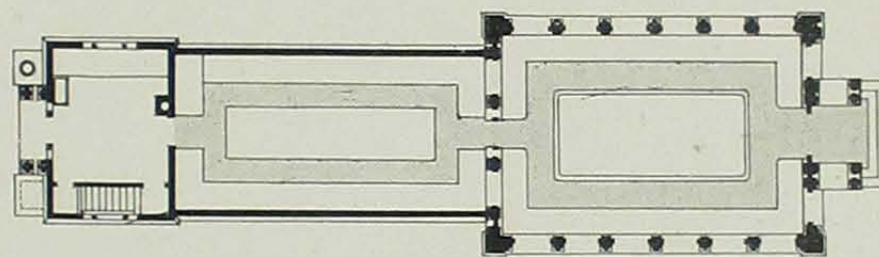
A Classic Treatment

Number 542

TO translate into wood and glass, that feeling of solidity and permanence, so essential in buildings of classic design, we feel has been successfully accomplished in this palm house.

Its intimate association with the nearby residence prompted its design.

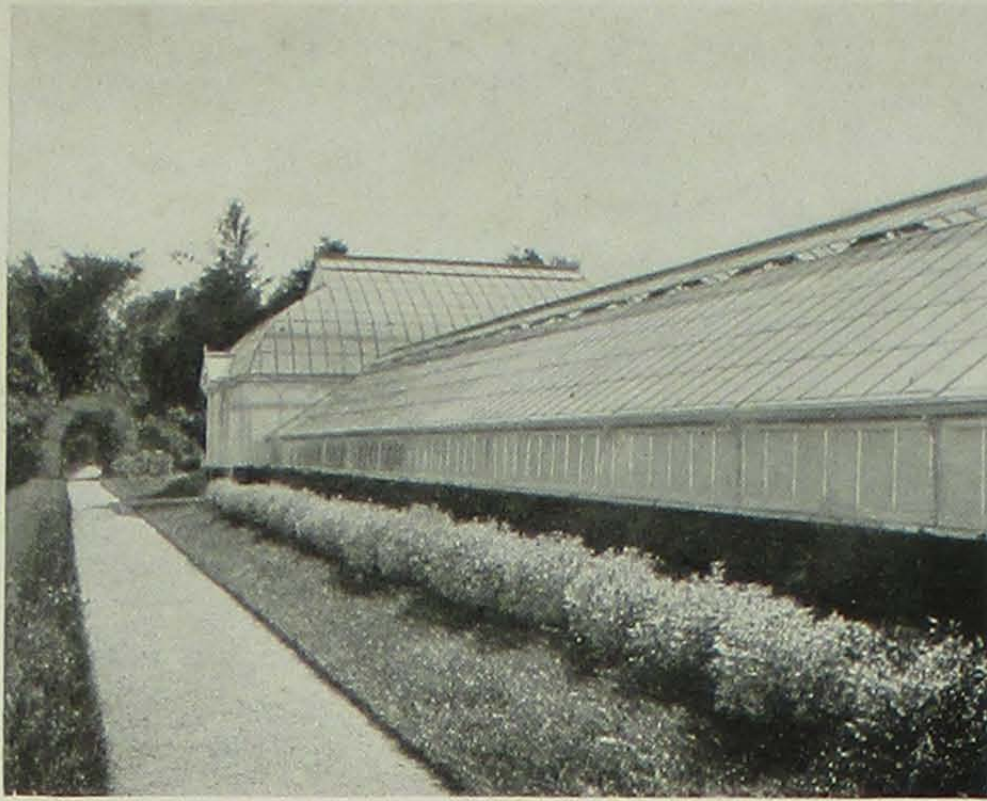
The practical purpose portion at the back is 18 feet wide and 33 feet 4 inches long, giving a goodly sized growing space for general plant favorites.



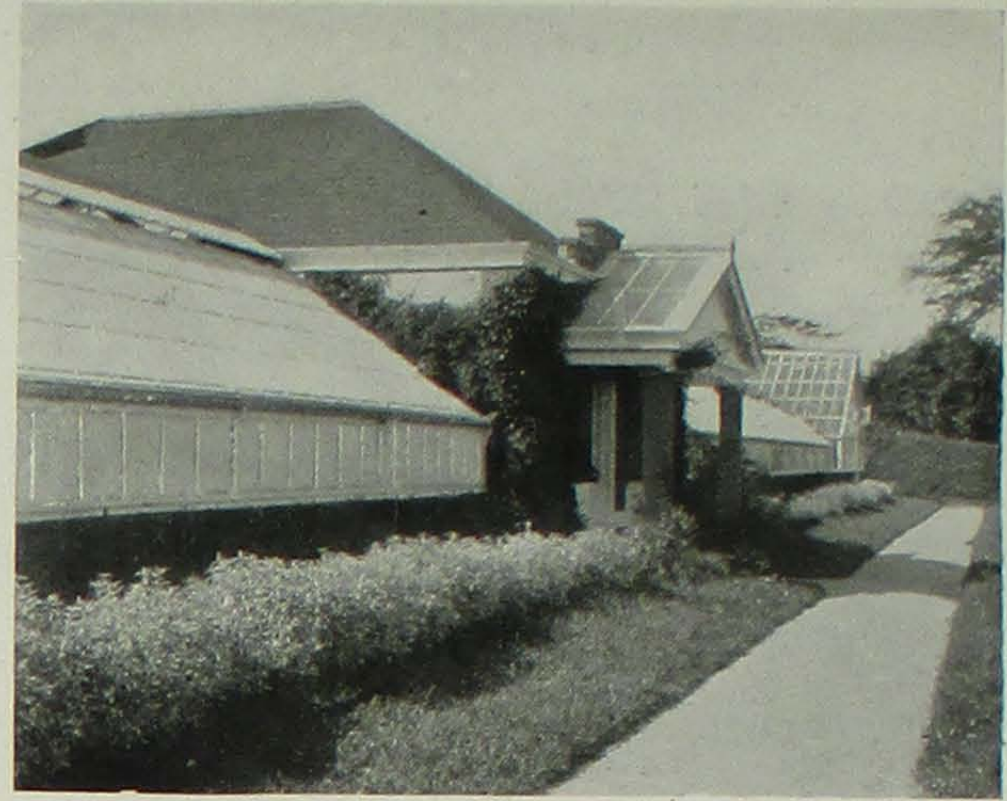
Plan Number 542—For variations of this plan, see the Harry Payne Whitney subject, Number 533-B on page 28.



Number 542-A—The character of the work room design restores the essential balance between the elaborate palm house and the severely plain general purpose portion.



Number 543—Looking along the terrace towards the palm house. The walk leads to the residence.



Number 543-A—The work room occupies an effective central position on the portion facing the garden.

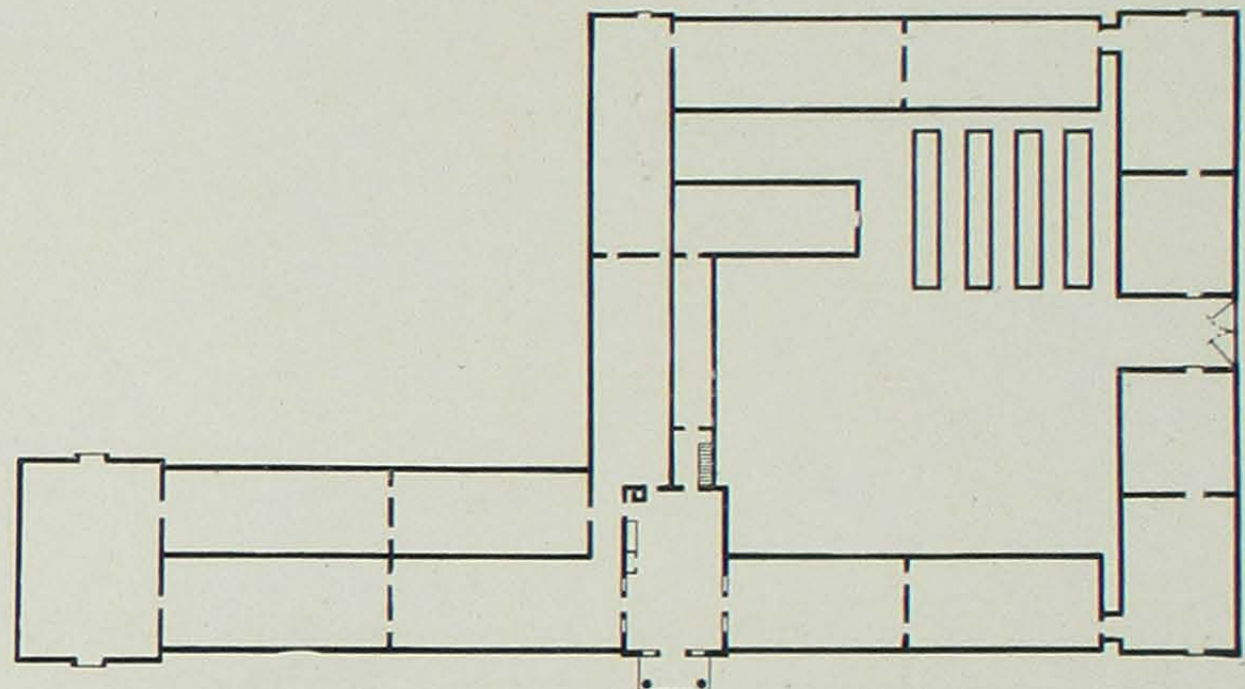
The Reid Group

Number 543

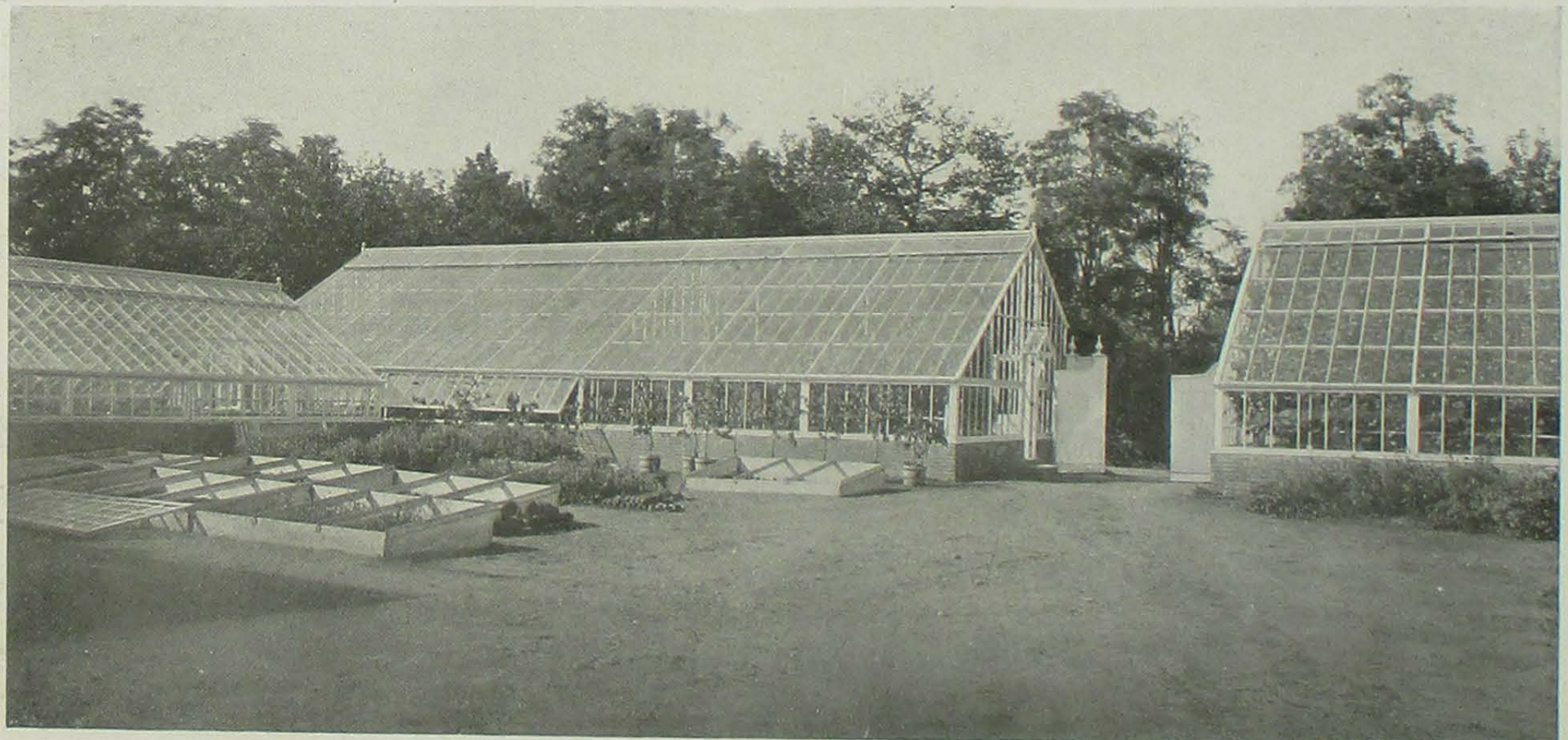
THIS comprehensive group of houses completed many years ago on the late Ambassador Whitelaw Reid's estate, at White Plains, N. Y., was among the first of its kind in this country.

It occupies an imposing position, above a terraced garden, and is an interesting example of the development of a moderate sized layout into an extensive one built around a service court.

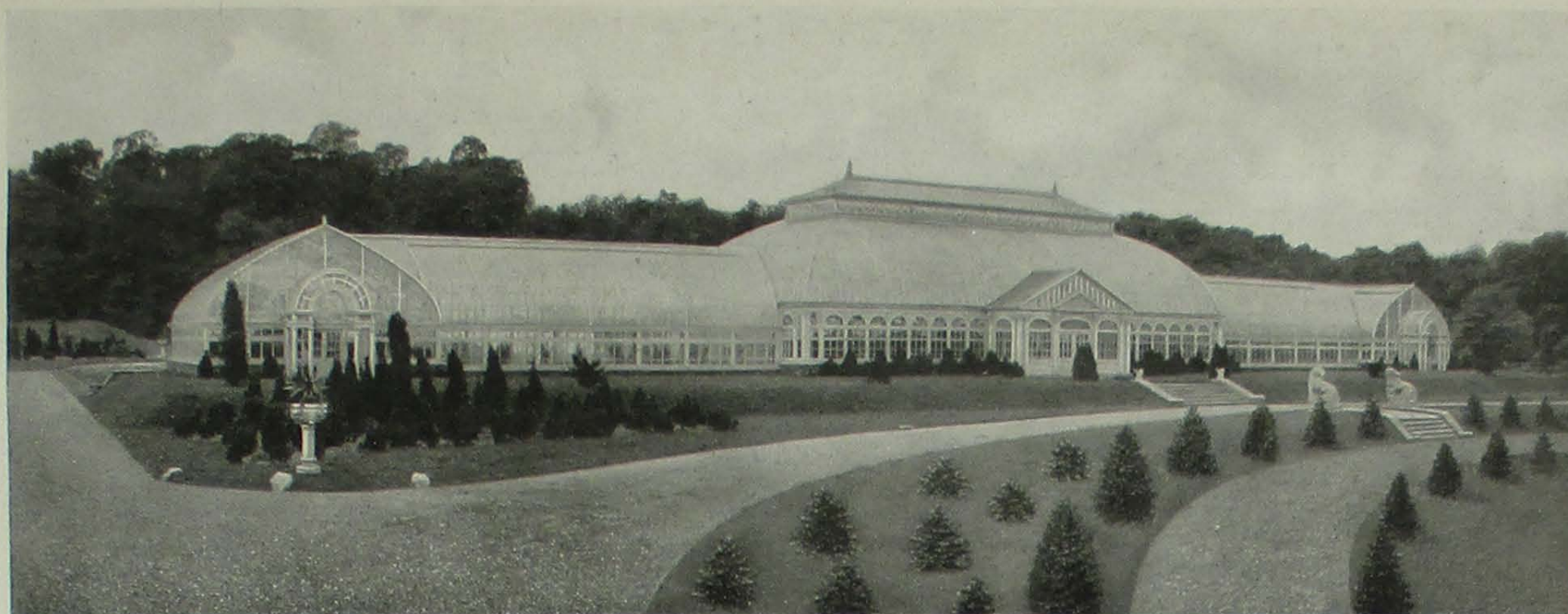
The splendid condition of the houses, after their 30 or more years of erection, speaks well for the thoroughness of the construction employed.



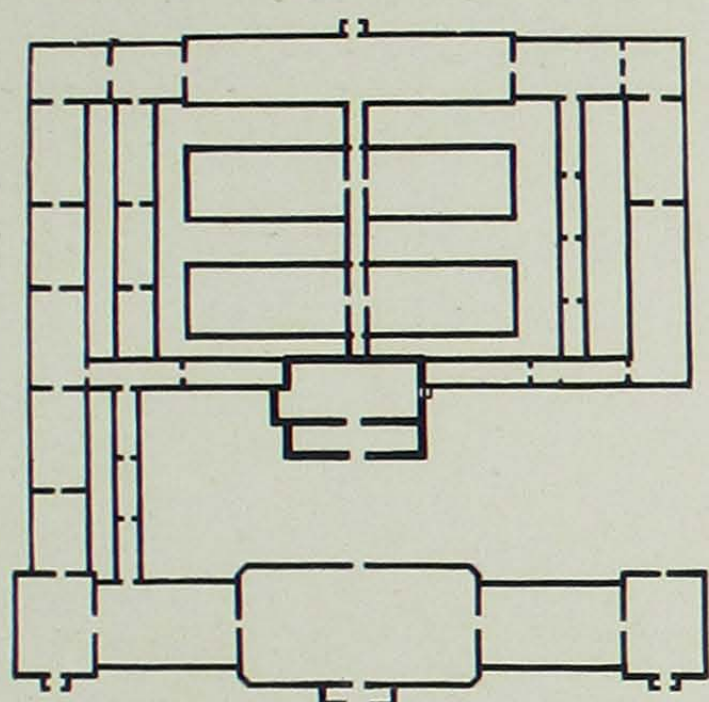
Plan Number 543—There are seventeen separate compartments, giving a wide range of growing possibilities for fruits, flowers and vegetables.



Number 543-B—The court, with its solid colonial gates, forms an admirable place for the frames and the general unsightly activities incidental to such a large layout.



Number 544—The entire central house is the orangery. The wing houses are veritable orchards of peaches, nectarines, cherries and pears.



Plan Number 544—The complete layout, showing cut flower and orchid houses.

A Famous Fruit Group

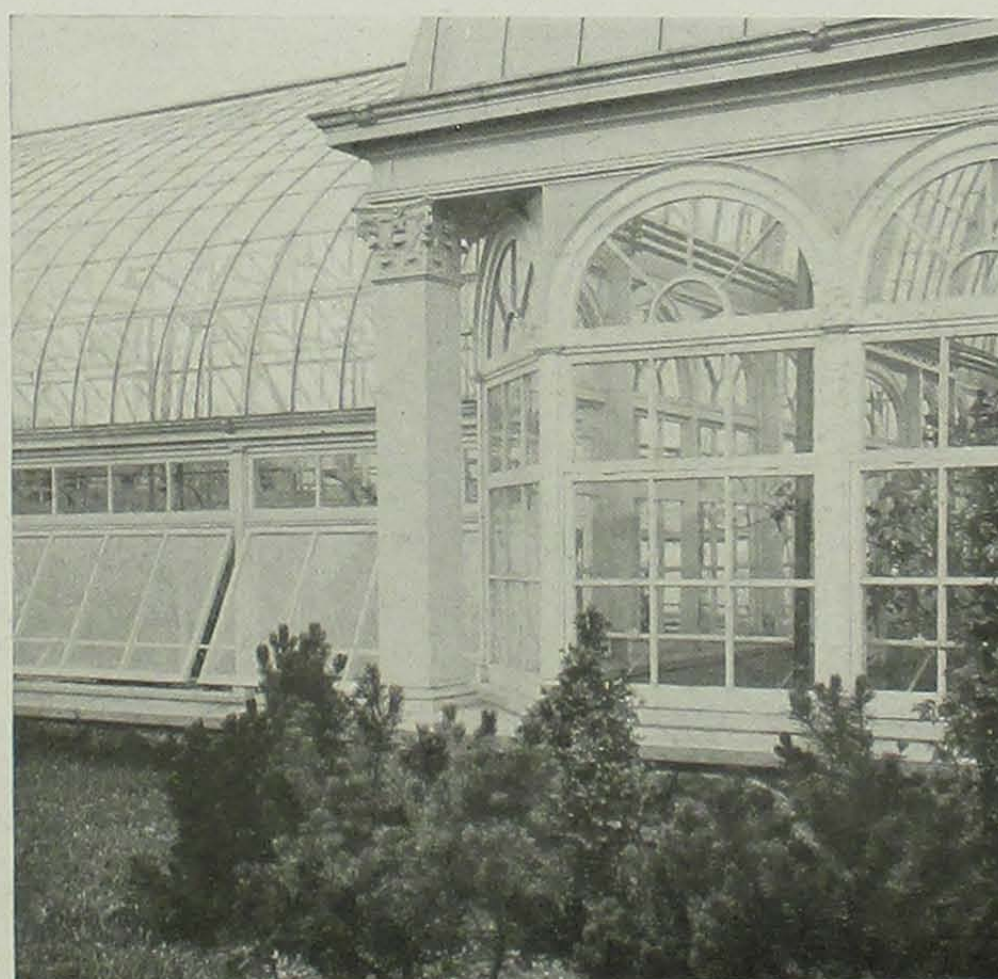
Number 544

IT'S doubtful, if either in this country or abroad, there is a group of glass enclosed fruit gardens to compare with those on J. B. Duke's famous estate at Somerville, N. J. They are joined at the rear to an extensive layout of cut flower and orchid houses. There is a magnificence in the size and approach of the group that makes you think back to the reigns of the French Louis'.

To come upon them in the garden of Versailles, would not be so unexpected.



Number 544-A—So large is the orangery, that this statuary is in perfect scale.



Number 544-B—Detail of the orangery showing an interesting treatment of the corners.

Greenhouses For Catholic Institutions

THAT Institutions should have greenhouses is only logical.

That such houses should be of the best and most enduring construction, is but consistent with the method pursued with their other structures.

In this connection, it has been our privilege to erect various houses for Catholic Institutions in different parts of the country.

The following is a list of just a few:

College of St. Elizabeth, Convent Station, N. J.

Georgetown Visitation Convent, Washington, D. C.

Right Rev. Bishop James A. McFaul, Bishop of Trenton, Trenton, N. J.

Mt. St. Mary Seminary, Scranton, Pa.

St. Joseph's Retreat, Dearborn, Mich.

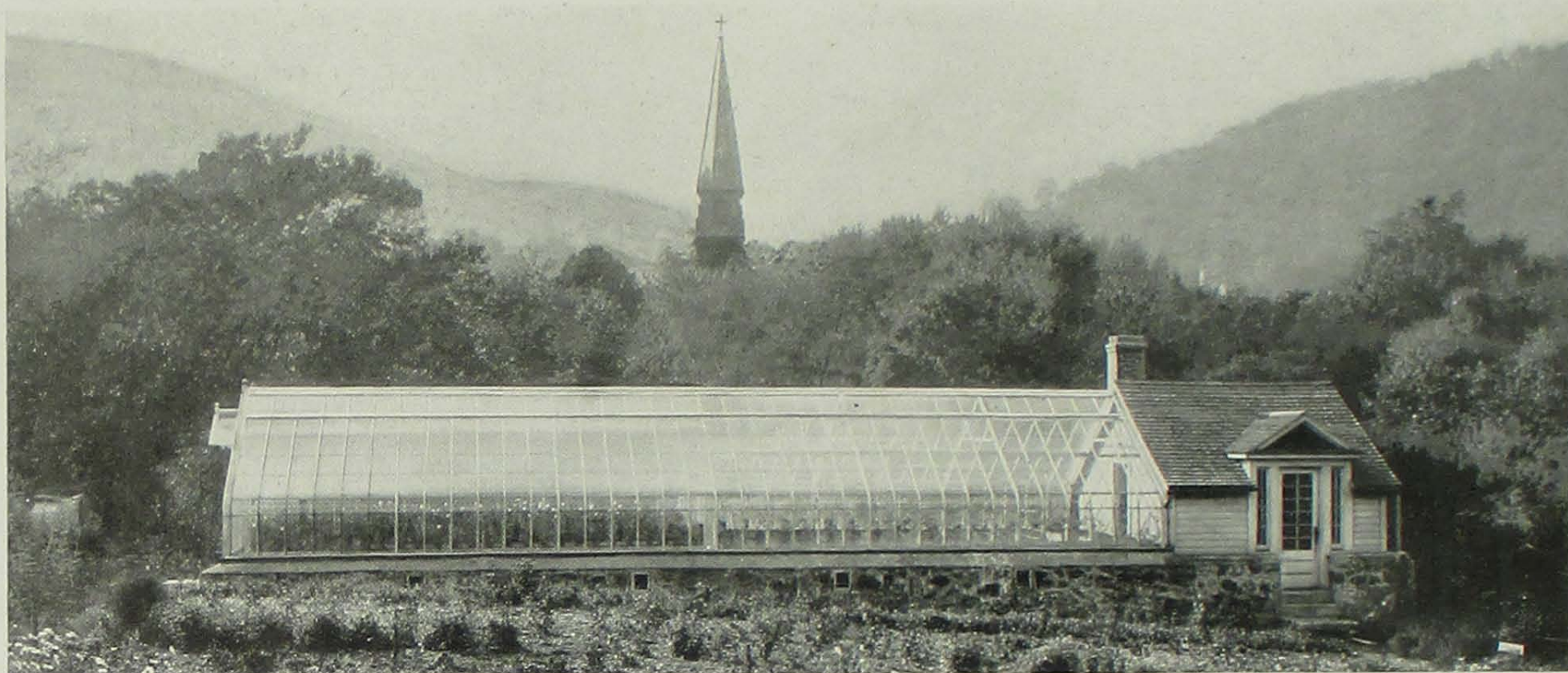
St. Mary's School, Peekskill, N. Y.

Mt. St. Alphonsus Catholic College, Esopus, N. Y.

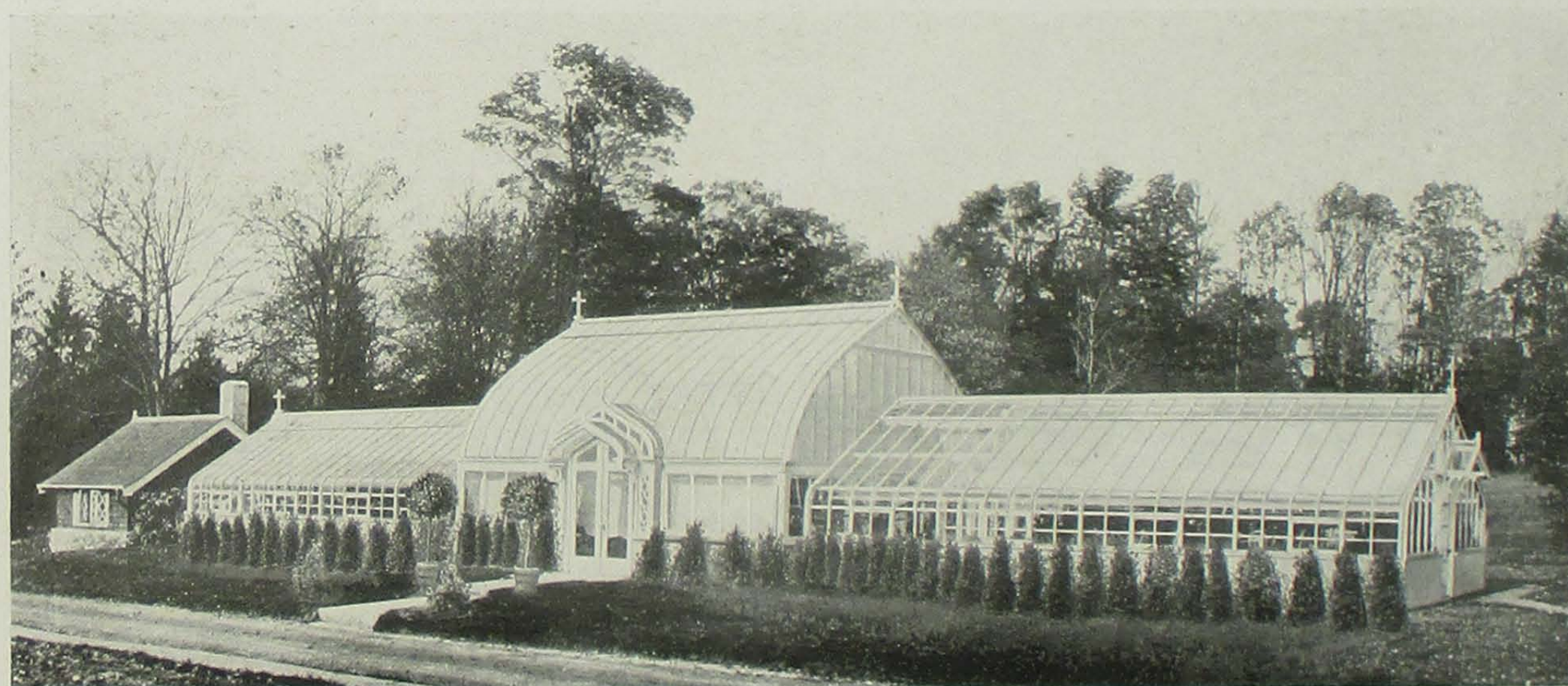
Lady Cliff Academy, Highland Falls, N. Y.

Convent of Lady of All Angels, Glen Riddle, Pa.

Convent of Sisters of Mercy, Merion, Pa.



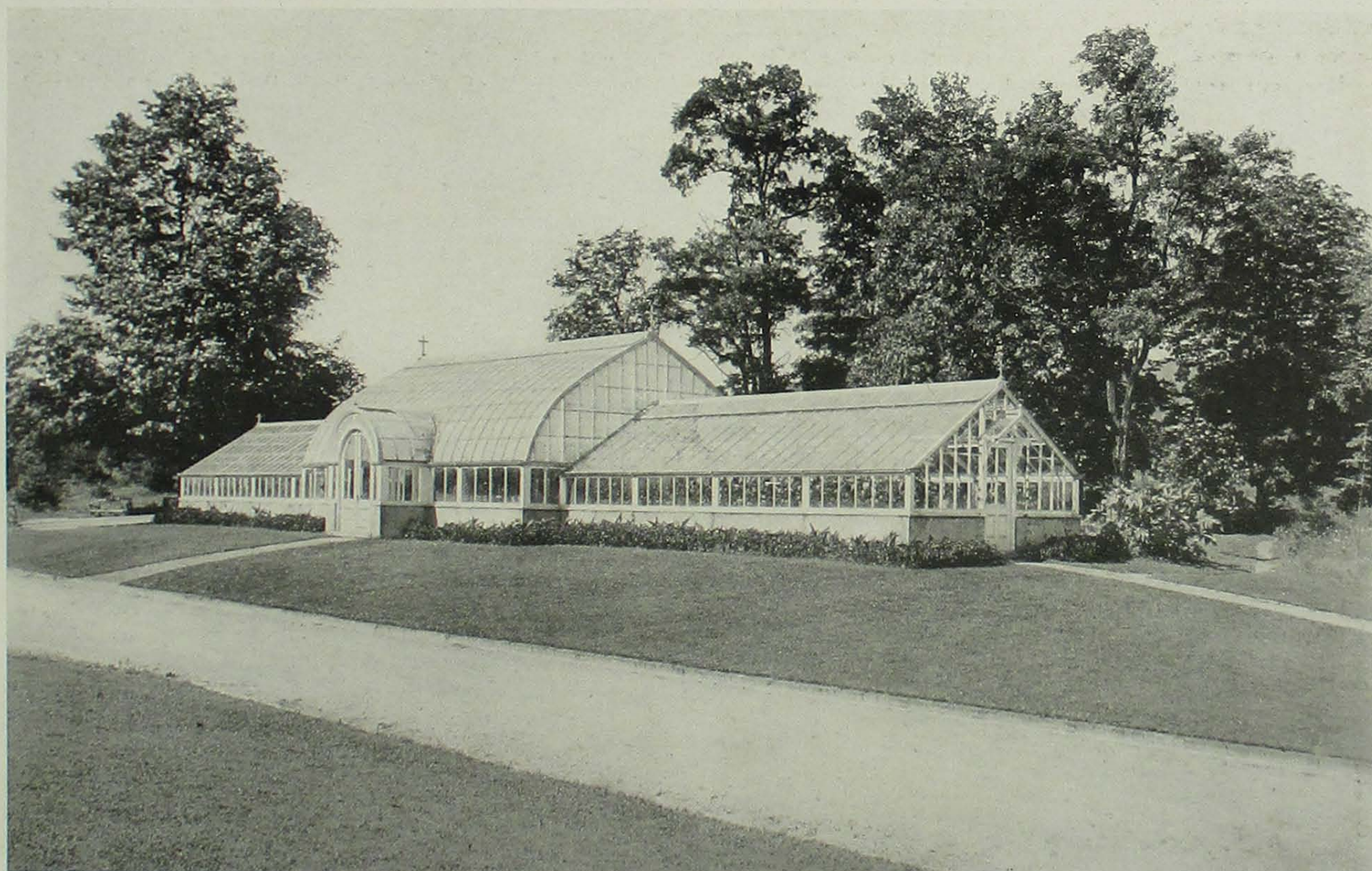
Number 545—Two compartments general purpose house 50 feet long, erected for Lady Cliff Academy, Highland Falls, N. Y.



Number 546—Demonstration houses for students in the Horticultural Course, as carried on at St. Elizabeth College, Convent, N. J.



Number 547—Part glimpse of the "Crystal Gardens" at Lady of all Angels Convent, Glen Riddle, Pa.



Number 548—A four compartment group at Mount St. Alphonsus College, Esopus, N. Y.

The Greenhouse as Used by Educational Institutions

IT IS gratifying to know that in the last ten years there has been a great awakening to the needs of plant instruction in the country's educational program. It has both its practical and pleasurable side.

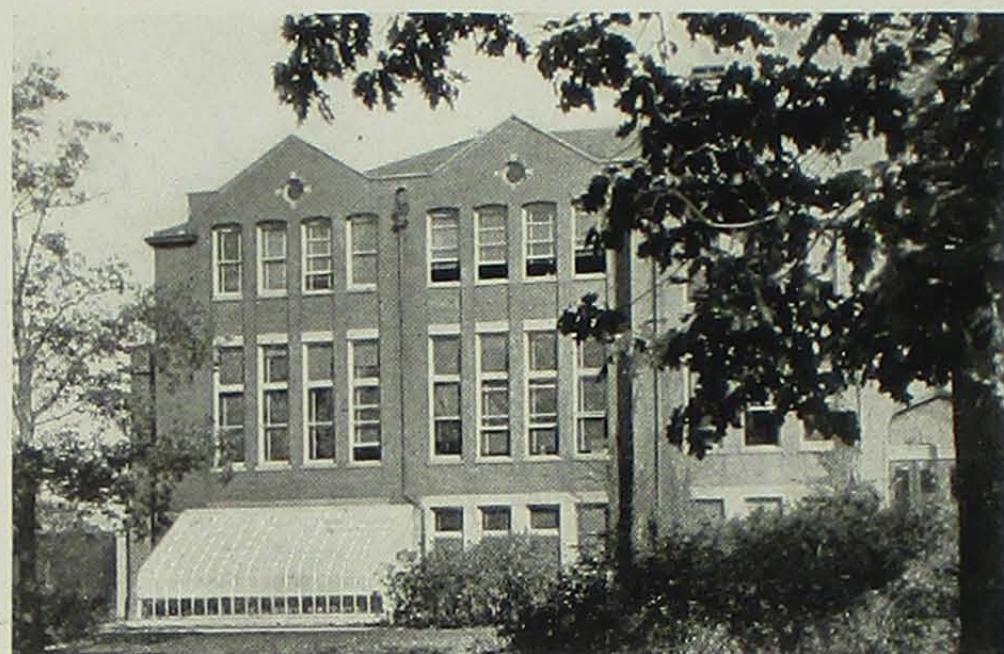
One is an essential—the other belongs to the rising generation by right of heritage.

How much more interesting to study the living, growing things in connection with botany, rather than dried or alcohol preserved specimens.

What a genuine joy can the study of a plant's life cycle be made, when the students each have their allotted space in the greenhouse to plant, care for and watch the development of the actual growing thing.

Surely such "plant laboratories" are quite as necessary as those for chemistry.

Let us encourage all possible, this healthy movement to develop the love and knowledge of the wondrous plants and flowers about us.



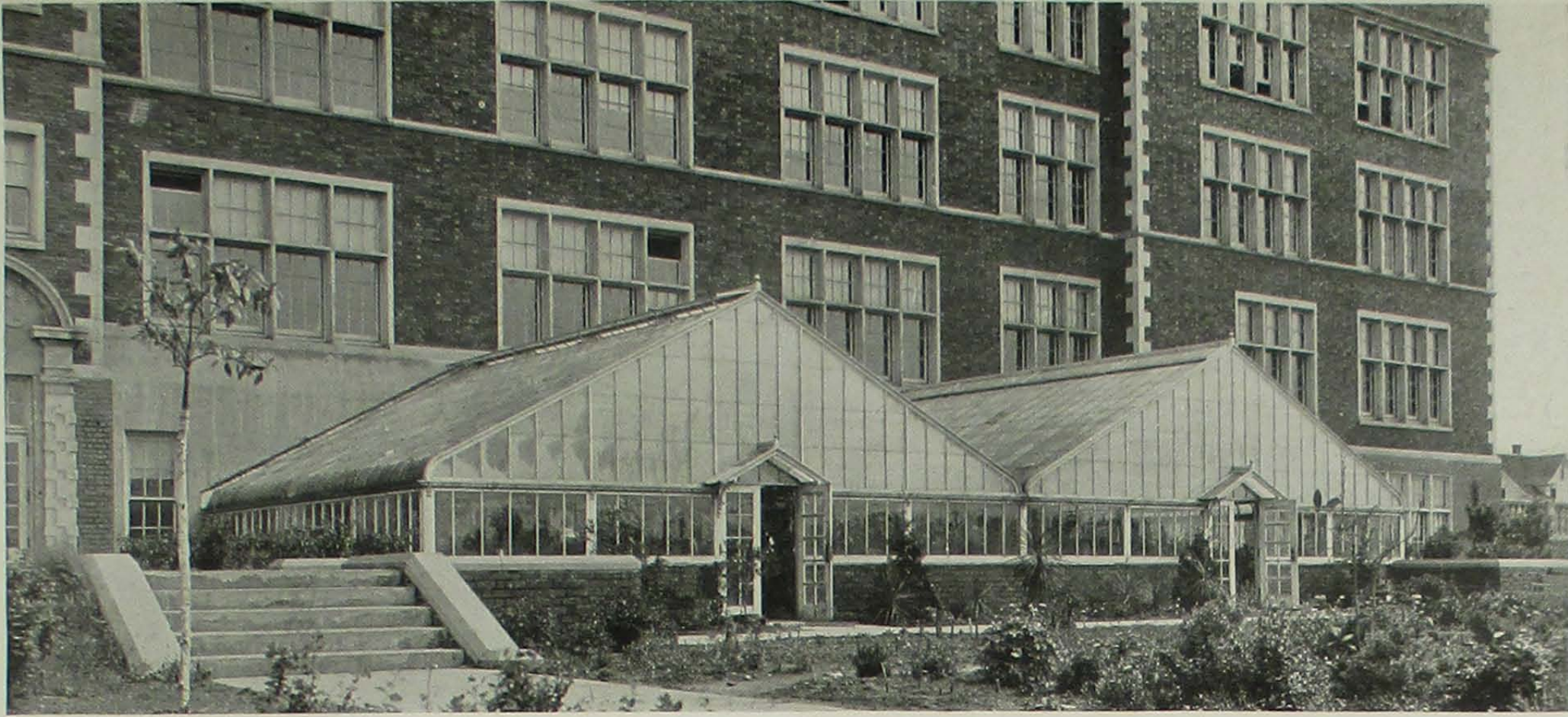
Number 549—Little Leanto greenhouse attached to Deerfield Township High School, Highland Park, Ill. Used in the Botany Course.



Number 550—On the very roof top of the Ethical Culture School, at Central Park West and 63rd Street, New York, is this complete little house.



Number 550-A—Glimpse in the Ethical Culture house. These boxes of plants may not mean much to you and me; but oh, how much they do to the children that call them theirs.



Number 551—Among the first of the Western schools to consider the question of the greenhouse as a necessary adjunct to plant study, was Minneapolis. This is the new Central High School.



Number 551-A—One of the Minneapolis Central High School houses, is used for regular growing purposes.



Number 551-B—The other is for class work. This happens to be a recitation on the plant cycle of our nationally beloved geranium.



Number 552—Johns Hopkins University of Baltimore, with its characteristic leadership, long ago established greenhouse work as a vital part of several of its courses.



Number 553—This gives you an idea of how abundantly grapes grow under glass. They are pruned to one stocky main vine, with short leaders from it, and having just enough leaves to keep the vines in health, so allowing the modicum of strength to go directly into the fruit.

Growing Fruit Under Glass—Grapes

GREAT are the possibilities in growing fruit under glass. In the few pages here devoted to the purpose, we are mentioning only those fruits which are the most generally grown, but you must not infer that they by any means cover the gamut of possibilities. First let us talk about grapes.

Grapes grown under glass defy all others in beauty and meaty lusciousness. Not even the far-famed vineyards of Europe, nor the favorable conditions of Californian climate and soil can produce anything comparable.

With our vineries you have all the requisites for success under absolutely perfect control. Temperature, moisture and nourishment can be regulated ideally. Year after year the same results can be obtained, because exactly the same conditions can be duplicated.

The strength which must of necessity go into grapes outside, to withstand the variable weather conditions, is under the protection of glass, converted into meatiness and delicacy of flavor. The evenness and beauty of the colorings secured are not the least of the advantages.

EARLY GRAPERY 25x33-4"	MEDIUM GRAPERY 25x33-4"	LATE GRAPERY 25x33-4"

Ground Plan Number 554—By having three compartments for early, medium and late fruiting, you can have a continuous supply of grapes from May to Christmas. Vineries and other fruit houses are sometimes built independently, but usually are joined to the other greenhouses, or connected to them by a glass passage.



Number 555—When the vines are undeveloped the first year, the grapery can be equipped with temporary benches and used for general plants.



Number 556—Interior of curved roof vinery showing the long length of vines possible, because of the great sweep of the roof.

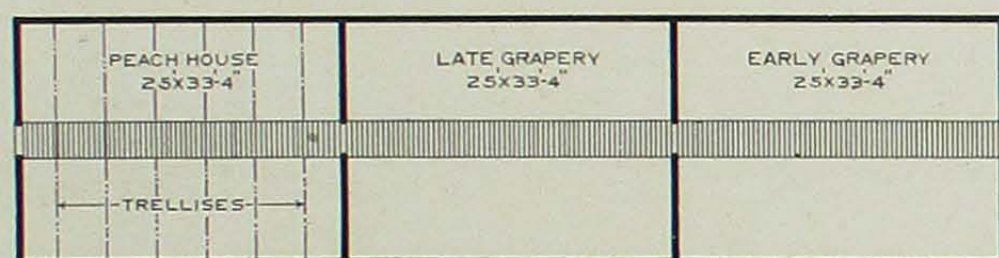
Cool Grapery

WHILE speaking of vineries, we must not lose sight of the cool one, which has on its side the advantage of not requiring any heat, thus entirely eliminating the coal bill. Of course, the number of varieties that you can grow without artificial heat is somewhat limited, but there is a goodly list. You will get at least six weeks' start over those grown in the open.

In sections where the season is too short to ripen fruit outdoors, the cold grapery is admirable. We have built several for that purpose in the Green Mountains of Vermont.

The Leanto house makes an admirable one. If you have a wall or building with a southern exposure against which it can be built, so much the better, as the cost will be considerably less.

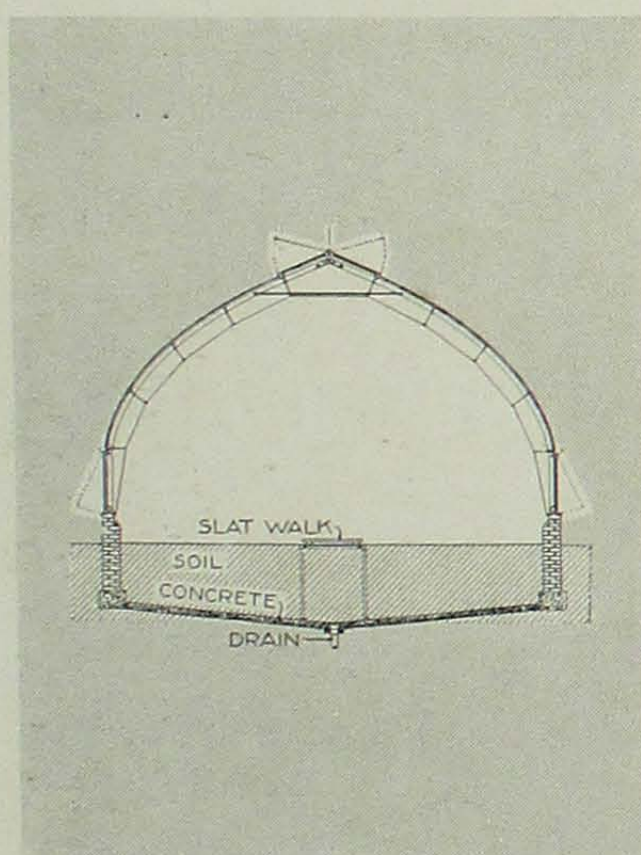
We have in mind a man living at Bennington, Vermont, who each season raises over half a ton of grapes from a Leanto house only 16 feet wide and 50 feet long. In addition to the grapes, he also grows countless bedding and vegetable plants as well, for early setting out. All of this is accomplished without burning a pound of coal.



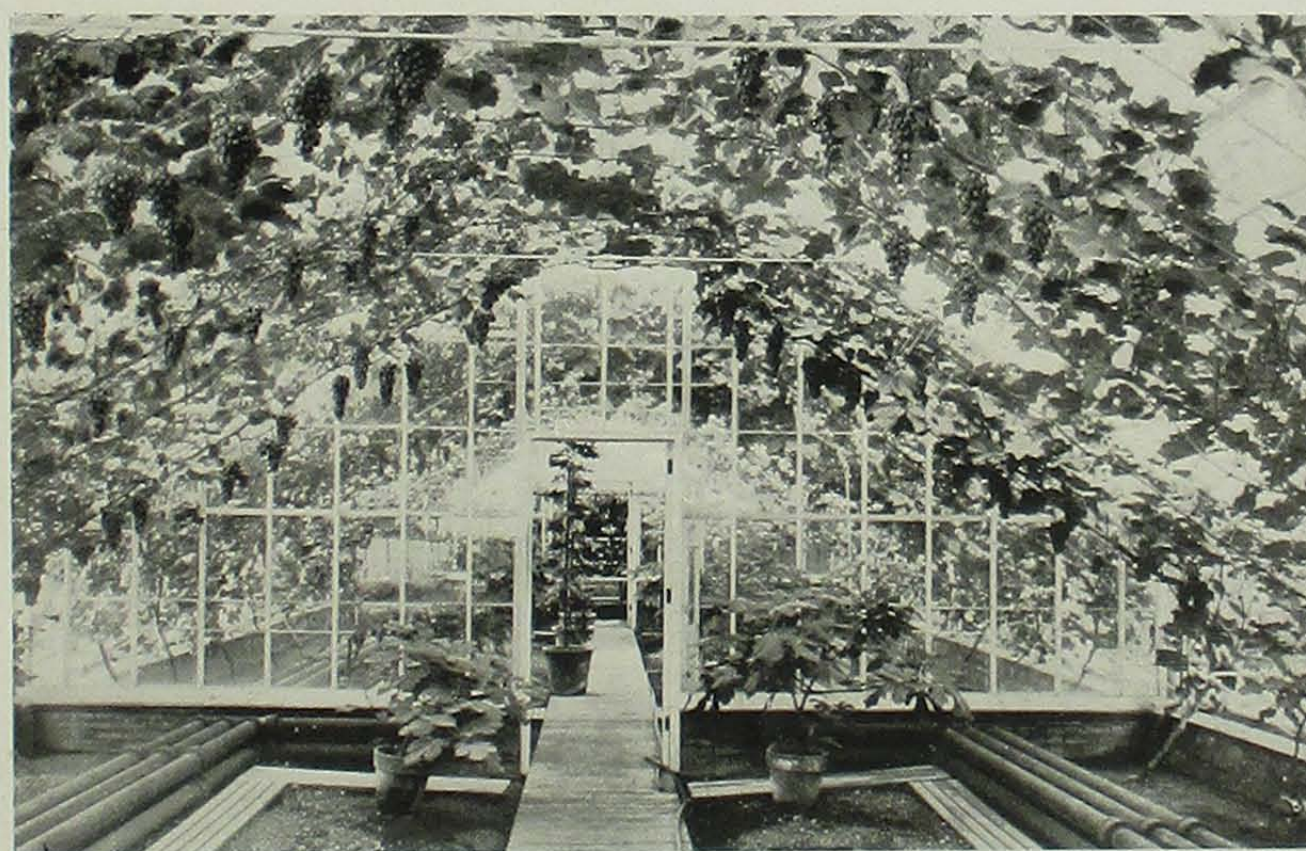
Ground Plan Number 557—Often one compartment is given over to the use of peaches and nectarines, and one each for an early and late vinery. Such an arrangement is shown in the above plan.



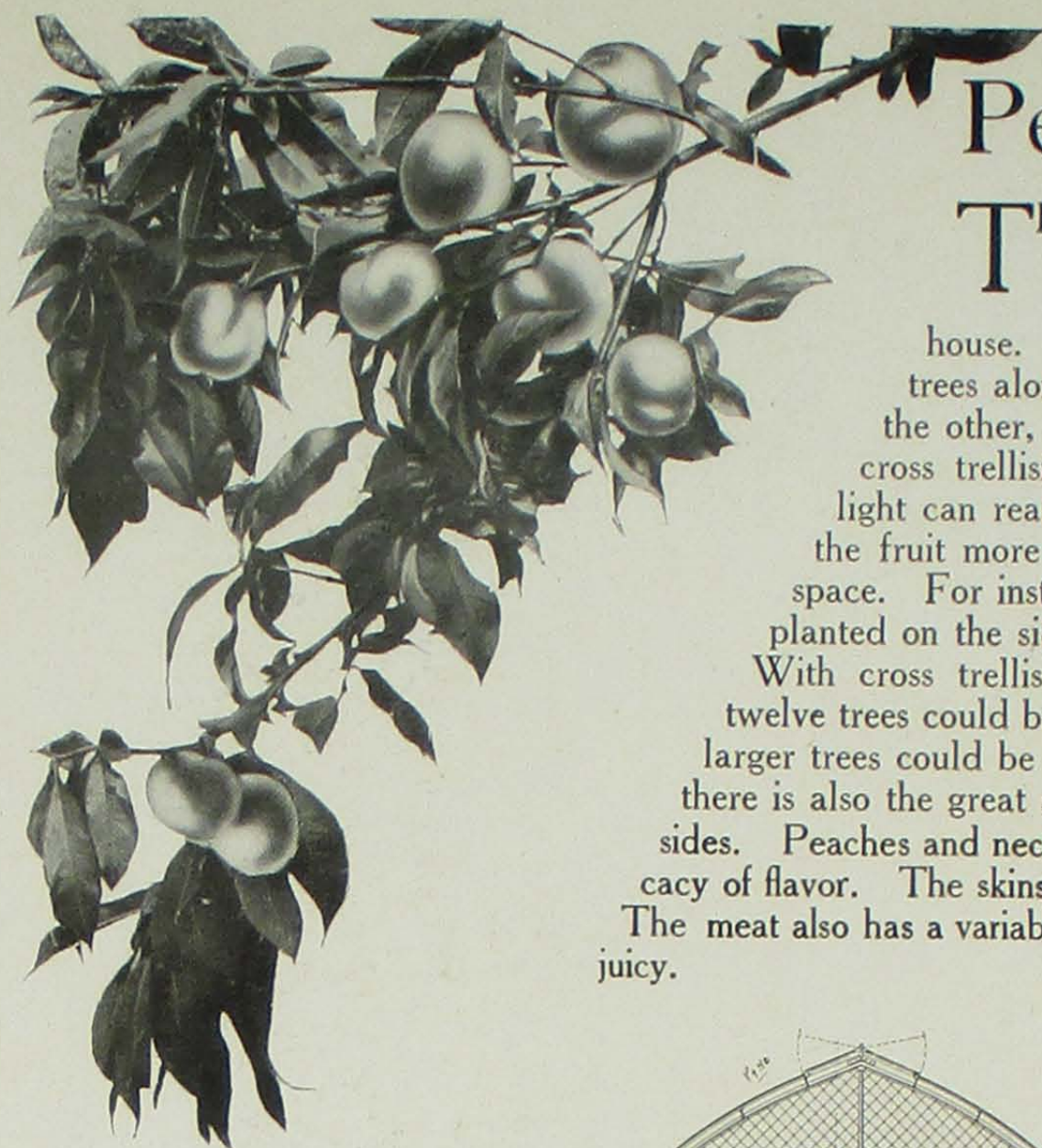
Number 558—Vines that are three years old when planted, bear the second year after planting. To bridge over this wait of a year, you can grow vines in pots and at once get splendid results.



Number 559—This section of the curvilinear vinery shows what is known as a "border" of masonry wall and floor, for confining the roots and furnishing perfect drainage.



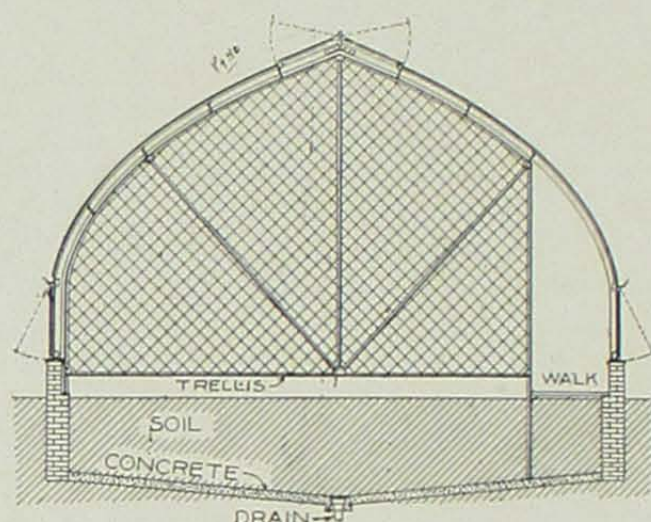
Number 560—A straight roof vinery interior. Not that such a vinery of equal width does not produce just as fine grapes as the curved roof one, but that the vines of necessity being shorter, the fruit is not as abundant. See Section F, page 76.



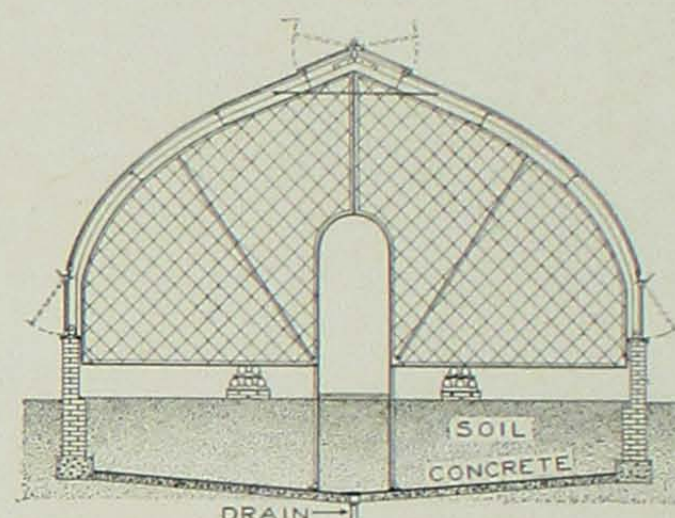
Peaches and Nectarines

THERE are two distinct ways of growing peaches and nectarines under glass; dwarf trees in pots, and the ordinary size trees planted directly in the soil of the house. Of the latter there are two methods, one, to plant the trees along the sides and train them on trellises along the roof; the other, to plant them away from the sides and train them on cross trellising. This last is considered by far the best, as the light can reach all sides of the trees equally, ripening and coloring the fruit more evenly. More trees can also be planted in the same space. For instance, in a 33-foot house six trees are all that could be planted on the sides, allowing the necessary room for future expansion. With cross trellising, like Section Number 563, in the same house twelve trees could be grown successfully, or with Section Number 559, six larger trees could be grown. In addition to the number of trees so gained, there is also the great advantage of being able to readily spray them on both sides. Peaches and nectarines grown in either of these ways have exquisite delicacy of flavor. The skins are thin and take on unthought of beauty of colorings. The meat also has a variable color beauty of its own, is free from shreds and always juicy.

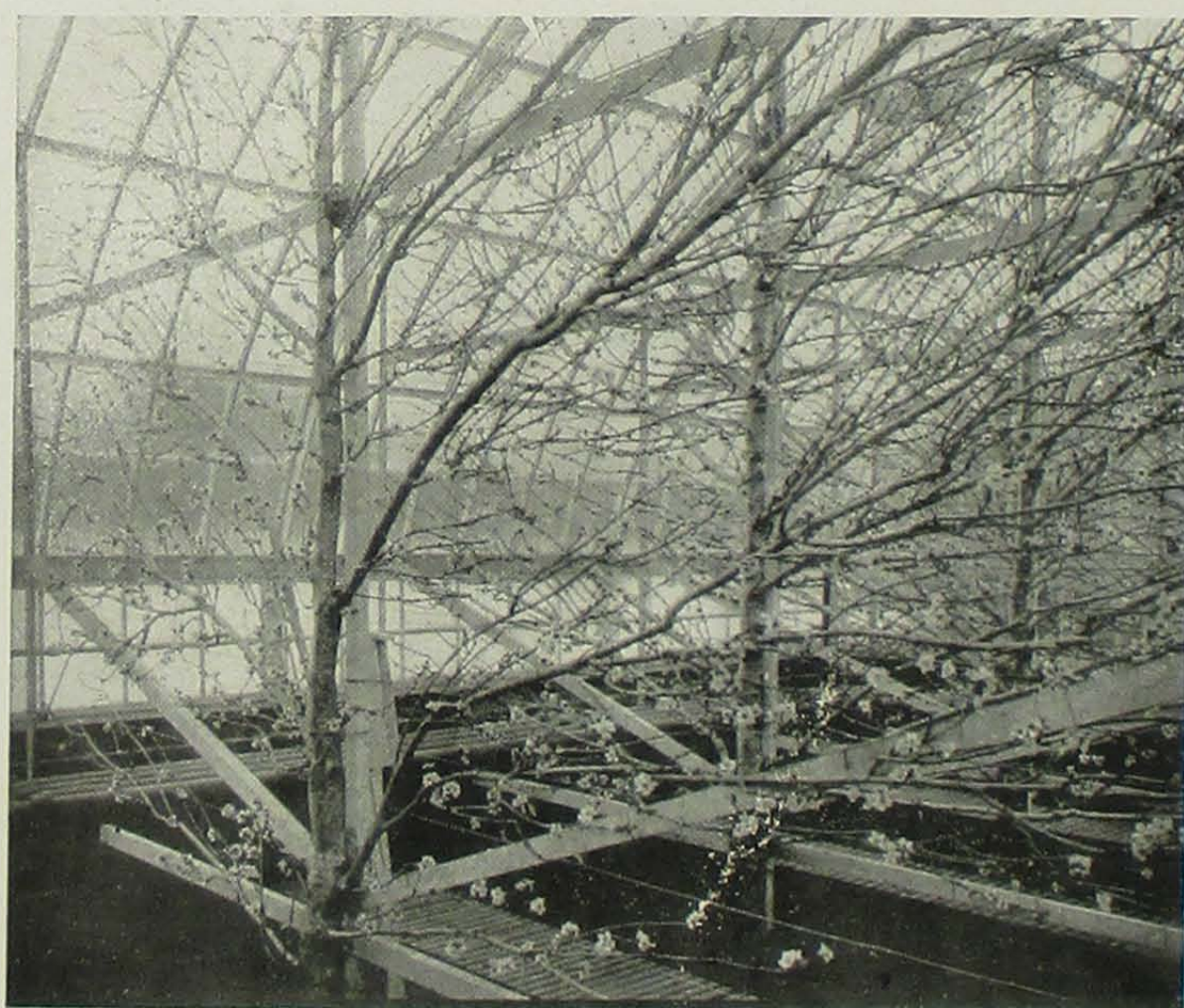
Number 561—The branches of this potted tree were so heavily laden they had to be supported. Even at that this one broke under its burden of fruit. Photo was taken at Commodore Benedict's, Greenwich, Conn.



No. 562—Section of curvilinear house showing cross trellis with side walk for supporting spread of one tree only.



Number 563—Section of a curvilinear fruit house showing cross trellis arranged for two trees, one on either side of the walk.



Number 564—Cross trellis interior with peaches in bloom. Photo taken in February at M. C. D. Borden's, Oceanic, N. J.



Number 565—Nectarine tree on side trellis. Photo taken at Miss E. J. Clarke's, Pomfret, Conn. The fruit was thinned down to one every 7 inches. Over 500 nectarines are picked from this tree each year.

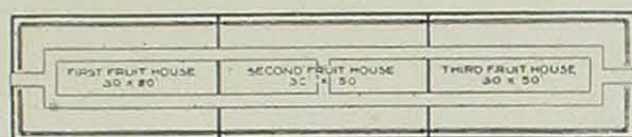
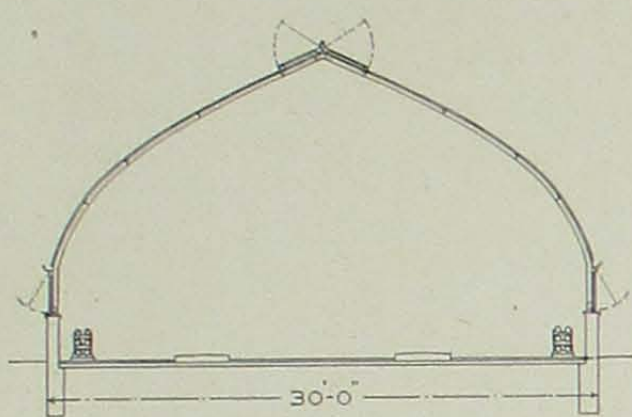
Potted Fruit

QUITE the most interesting way, however, to grow fruit under glass is in pots. There are many points in its favor. In the first place it is cheaper, as the orchard house is filled with the dwarf trees in pots for only five or six months of the year, and the rest of the time the house is available for other uses, chrysanthemums, for instance.

With potted fruit, you can easily have a greater variety, and do not stop at peaches and nectarines, but add apples, pears, plums and cherries as well.

Each tree takes up but little space and it is surprising the quantity of fruit a dwarf tree will yield.

This is a great point for the man with the small house as he can have all the fun of an orchard with many varieties of fruit.



Number 566—John Ash, Superintendent for Miss E. J. Clarke, at Pomfret, Conn., who has had phenomenal success in all kinds of fruit growing under glass, advises for those who want to go into potted fruit growing extensively, a house like this curvilinear section, 30 feet wide and 150 feet long, divided in three compartments.

Number 567—John Ashe's reason for advising three compartments is because various fruits differ in their requirements as to ventilation and temperatures and the three compartments give you opportunity to grow a practically unlimited number of varieties.



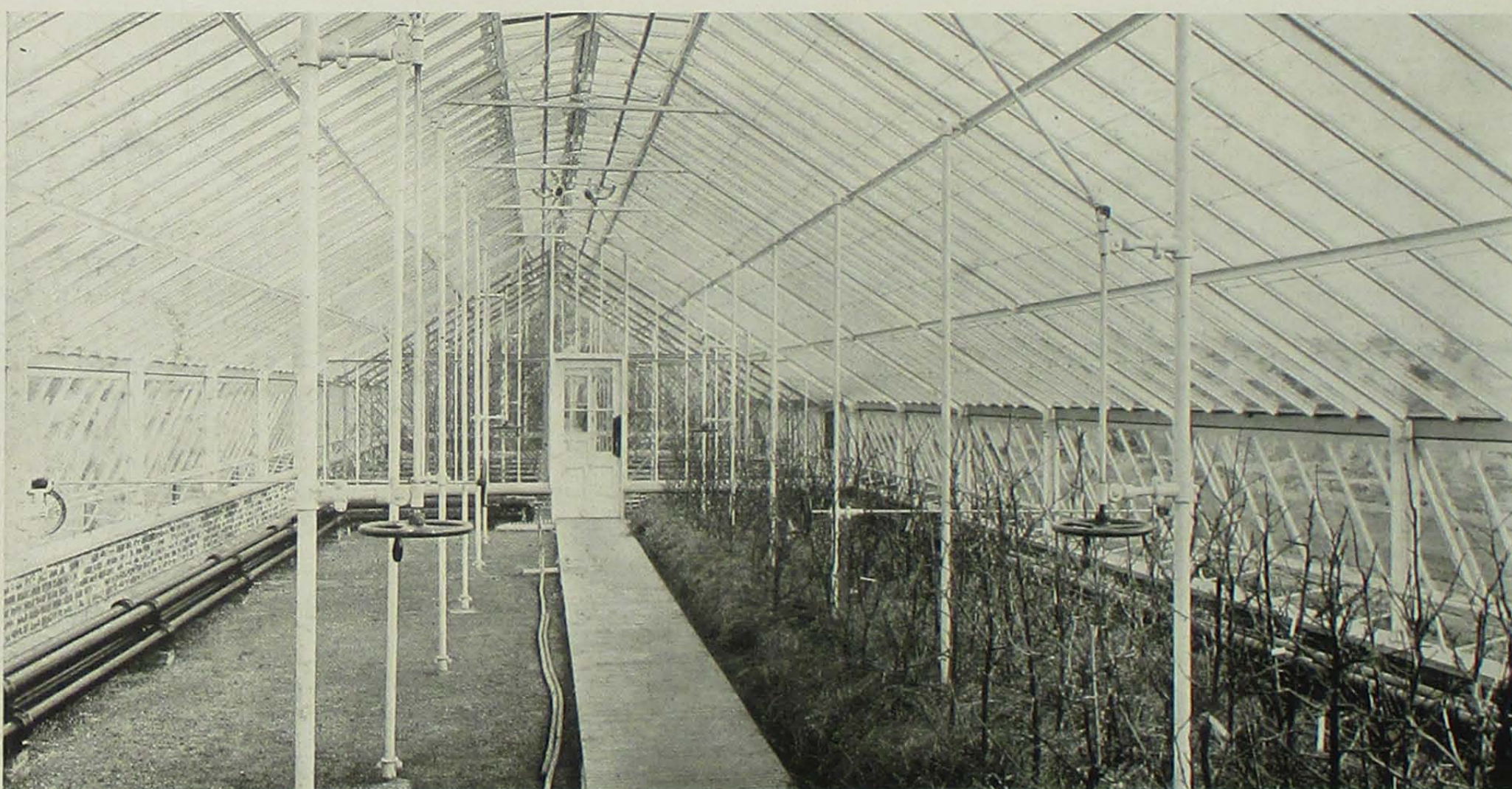
Number 568—Interior of a curvilinear orchard house with the apple trees in full bloom. Photo taken the 8th of March. In the compartment beyond, the cherry trees were showing little green cherries and the peach and nectarine blossoms were just dropping their pink petals.



Number 569—Pear tree grown by William Turner in M. C. D. Borden's orchard house. Each year it bore thirty pears, 12 to 14 ounces each.



Number 570—After the fruit is picked from the potted trees, they are taken out of the house and the pots plunged in the dirt. This gives the wood a chance to "ripen off," as the gardeners say. They are left here until there is danger of frost breaking the pots.



Number 571—Just after they have had a light freeze outside, they are brought into an unheated house, and the pots protected by hay. They need not, however, be placed in a greenhouse, as this man does, as any shelter in which the pots can be kept from breaking by freezing, and cool enough to keep the buds from starting, is all that is necessary. Along the first of January they are then uncovered and placed in a slightly warmed greenhouse for gradually "starting up."



Pineapples

Number 572—Pineapples grown under glass are quite a novelty in this country, but if people only knew how choice the "pines" then are in their succulent meatiness, how free from woodiness and indigestibleness, they would certainly be grown in every greenhouse of any considerable size.



Figs

Number 573—Figs are another thing that ought to be grown more generally. They are not difficult to handle, do splendidly in a small house and yield two crops each year—what more could one ask?



Number 574—A newly started grove in W. H. Walker's orangerie, at Great Barrington, Mass.

Orangeries

WHEN you consider that oranges were the first fruit known to be grown under glass, several centuries ago, it is rather strange that it should have been pursued only in recent years in this country.

The very first record of a glass enclosed house for growing purposes of any kind, history states as being for ripening oranges to a perfection "fit for a king of France."

If you have never happened to be in one of the



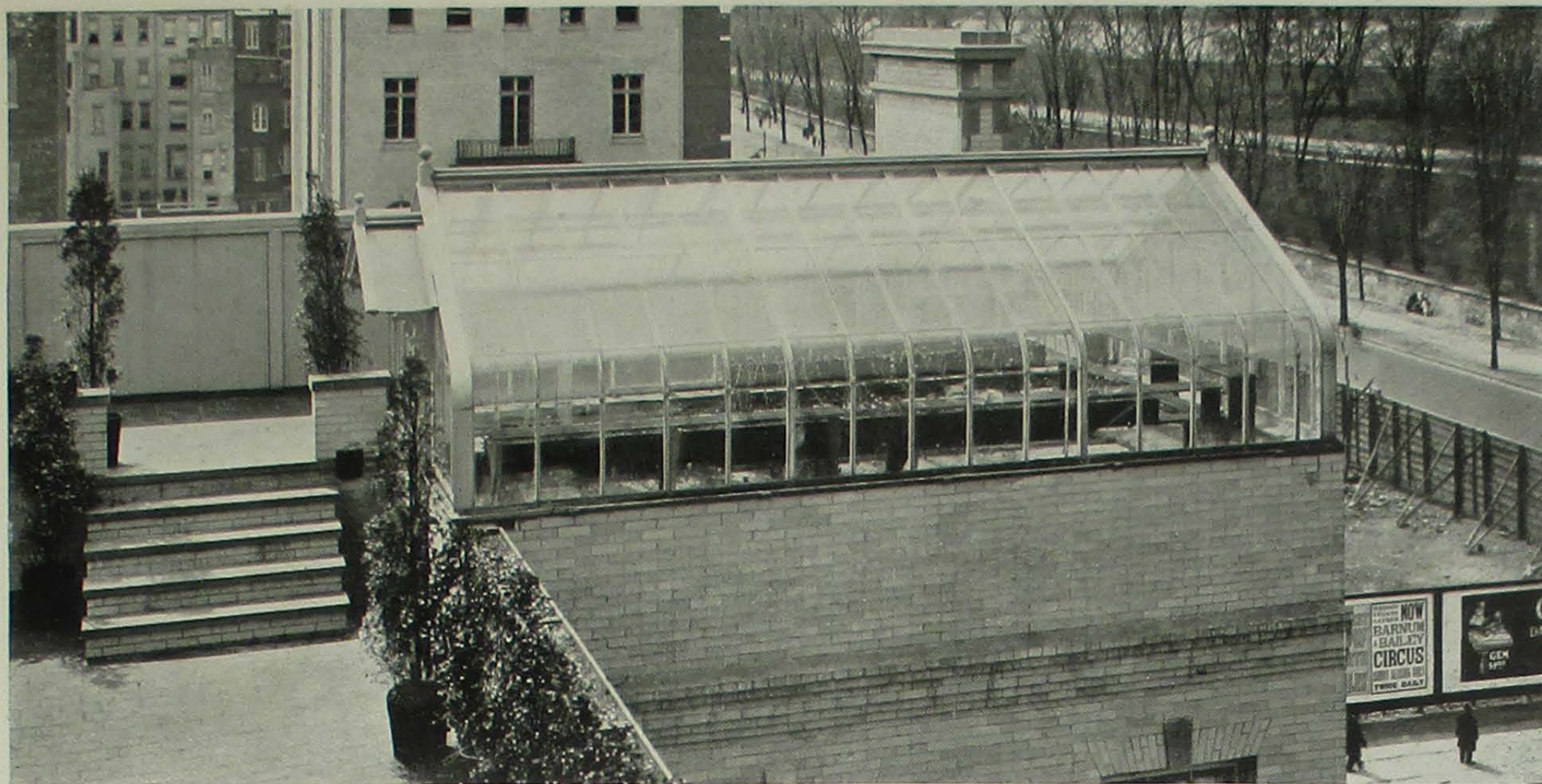
Number 574-A—A nearby glimpse of the young trees. That is ground ivy between them.

modern orangeries when in bloom, you, indeed, have a treat in store.

The waxy leaved trees are festively decked in their creamy blossoms, while the air is laden with sweetness.

The fruit so grown has a rare delicacy of flavor—a height of ripened perfection hardly possible even in their native sunny climes.

J. B. Duke has the largest orangerie in this country, on his estate at Somerville, N. J. See page 37.



Number 575—Roof top glass garden erected for Mr. Ogden Cadman, 7 East 96th Street, New York City.

Roof Top Glass Gardens

YOU, no doubt, have heard of the New York artist who built himself a bungalow with a delightful flower garden accompaniment, on top of a New York sky scraper.

The greenhouse then, to insure all year round gardening joys, is but the logical sequel.

Years ago we built extensive glass gardens on the tops of some of the country's famous department stores.

For a New Yorker we built one as a sunshine room for

his kiddies to play in. When they grew up, it was used as a sleeping place.

That started some others, and we have built several house top enclosures for that purpose, equipping them with ample ventilating sash at both the ridge and sides.

Let one of our experts come and look your roof over. He may be able to suggest the location of a glass garden in a way that will be a most agreeable surprise to you. Leastwise, that is the way it has happened with others.



Number 576—When the streets are unsightly with dirty snow, and all nature seems to "have it in for us;" then what a delightful compensation is a garden full of flowers like this.

Conservatories and Sunshine Rooms

EVERYONE who has an affection for flowers wants a place for their protection through the Winter months. Although such is exactly the province of the greenhouse, still the conservatory being joined to the residence, has the advantage of accessibility. Opening from some one of the main rooms, the effect of the conservatory can be most charming as one catches glimpses of graceful palms, hanging ferns and color spots of beautiful blooms.

Some devote their conservatories to growing a general assortment of plants, fussing around among them much as our grandmothers did in their bay windows full of geraniums, oxalis and fuchsias.

Still others use them for show places where are brought from the greenhouses the finest specimens of foliage and

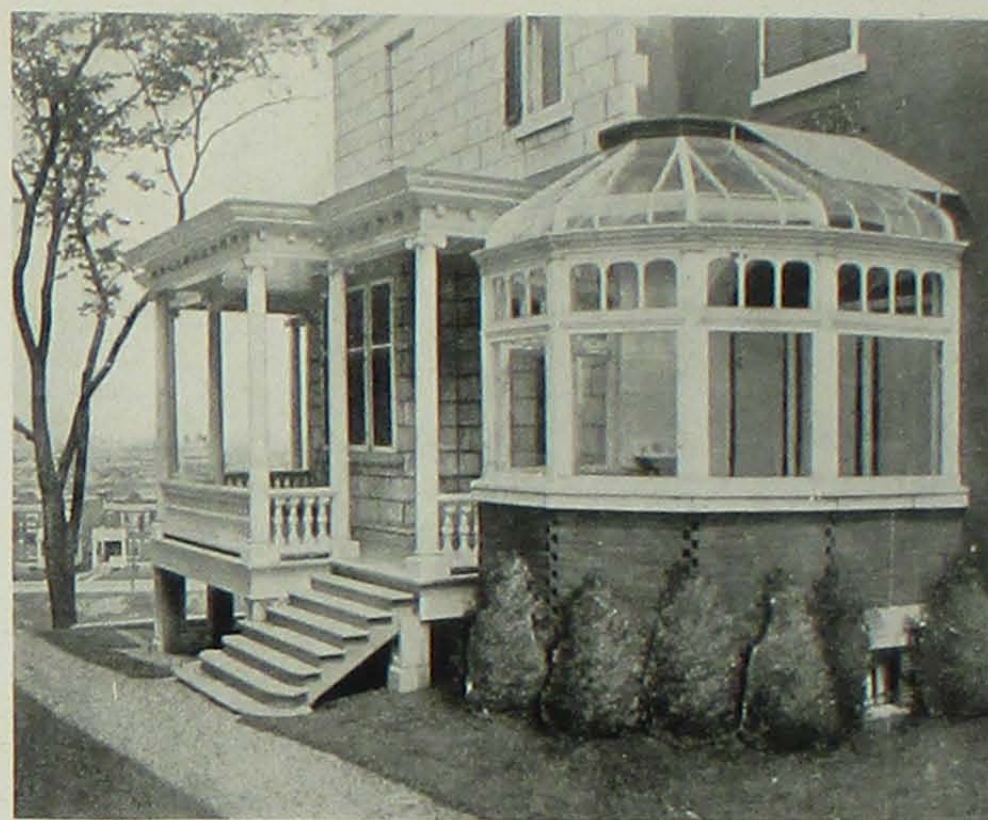
blooming plants so that all may enjoy them without going out in the weather to visit the greenhouses.

Then there is the conservatory living room and sun parlor, many interesting examples of which you will find in turning the next few pages.

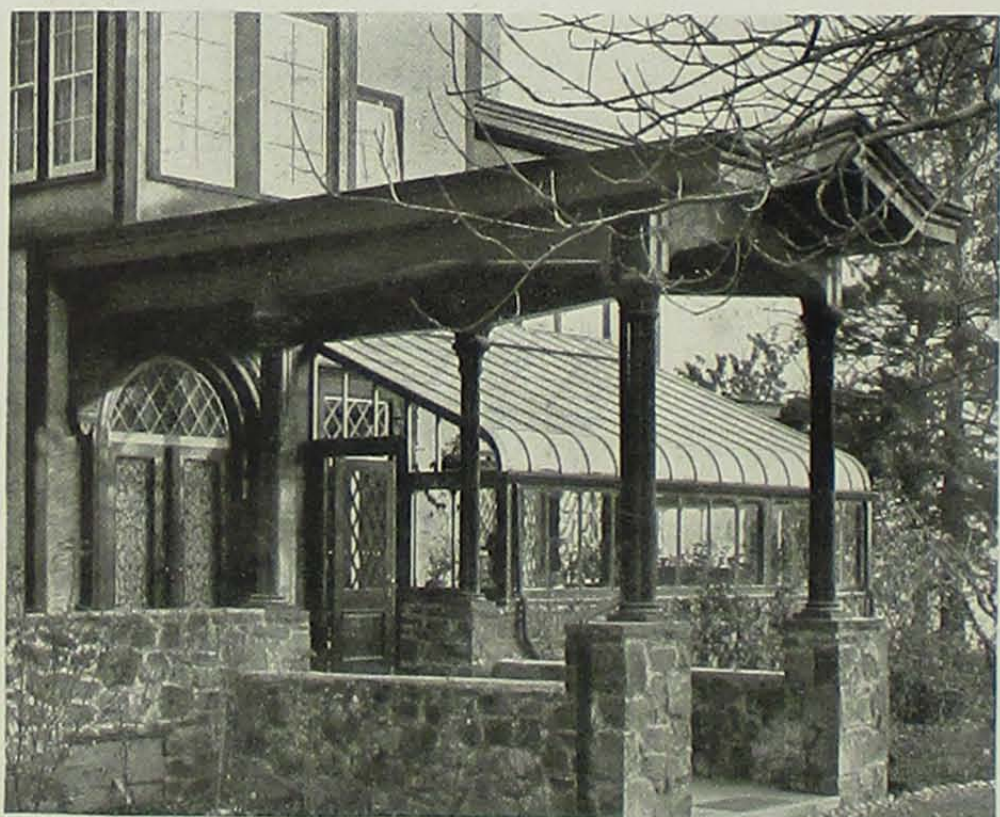
But before doing so, just a word as to their construction. They are built of our iron frame construction and made in the same thorough manner as our greenhouses. Designs are of course varied to conform harmoniously with the dwelling. So successfully is this done that the impression of its being "an afterthought" is entirely overcome. As all the materials are cut and fitted at the factory, their erection is free from the usual vexatious building delays and consequent inconveniences of being torn up indefinitely.



Number 577—This little gem we erected for Mr. A. A. Grothe, Montreal, Canada. It opens very effectively directly off the entrance hall.



Number 578—So satisfactory was Mr. Grothe's conservatory, that his brother-in-law, Mr. J. W. Jalbert, whose property adjoins, asked us to design and erect one for him. This is it.



Number 579—Dr. G. J. Helmer, of Nyack, N. Y., wanted a genuine liveable sunshine room. You will admit it fits in attractively with the residence lines.



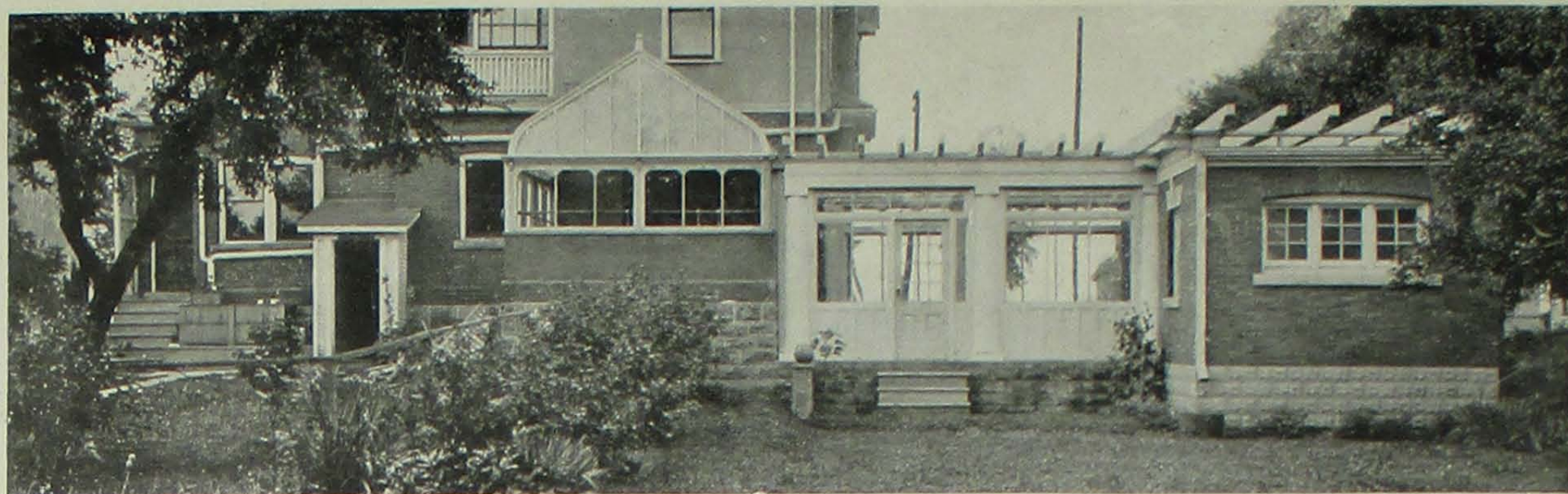
Number 579-A—And this is the interior, with its homey comforts; its opportunity for numerous flower surroundings.



Number 580—This is a genuine sunshine room, if there ever was one. It was designed by Hoggson Bros., of New York, for Mr. R. R. Conklyn's country home at Huntington, L. I. It is like a room with one side extended into a splendid big glass enclosed bay window. It is a treatment we can enthusiastically urge duplicating.



Number 580-A—The lattice treatment, combined with the moss bank, ferns, and potted plants, gives a restful background of greenery that tends to absorb any undue glare from the under glass portion.



Number 581—An altogether unique linking of residence, conservatory, glass enclosed pergola and garage, belonging to Mr. G. K. Fraser, Hamilton, Ontario, Canada.

Two Happy Happenings

Number 581

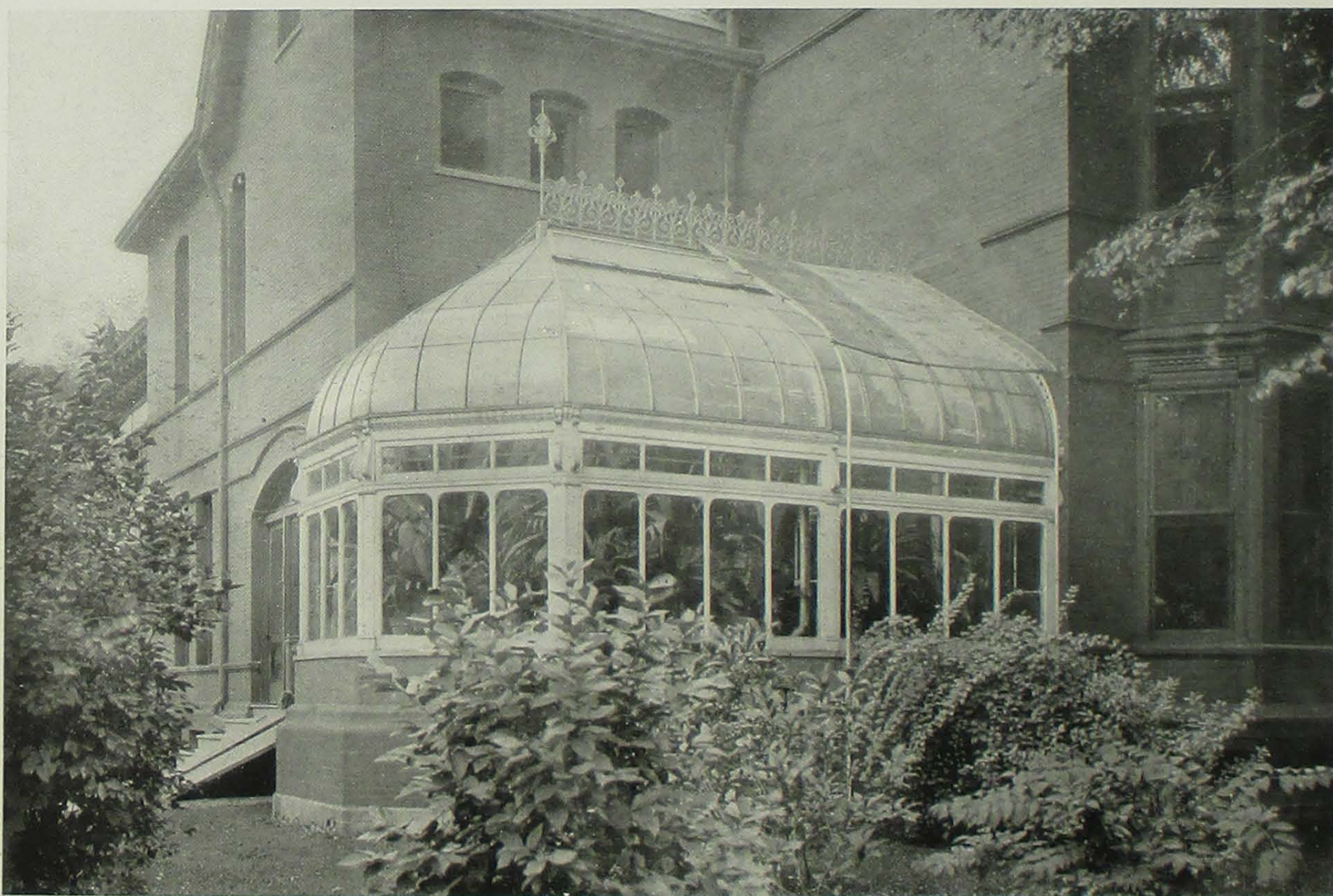
MR. G. K. Fraser had an attractive brick garage connected to his residence by a pergola. He conceived the idea of having a conservatory opening by glass doors from the dining room, and then roofing over and glassing-in the pergola for additional flower growing space.

We were privileged to carry out the idea, which worked out most happily.

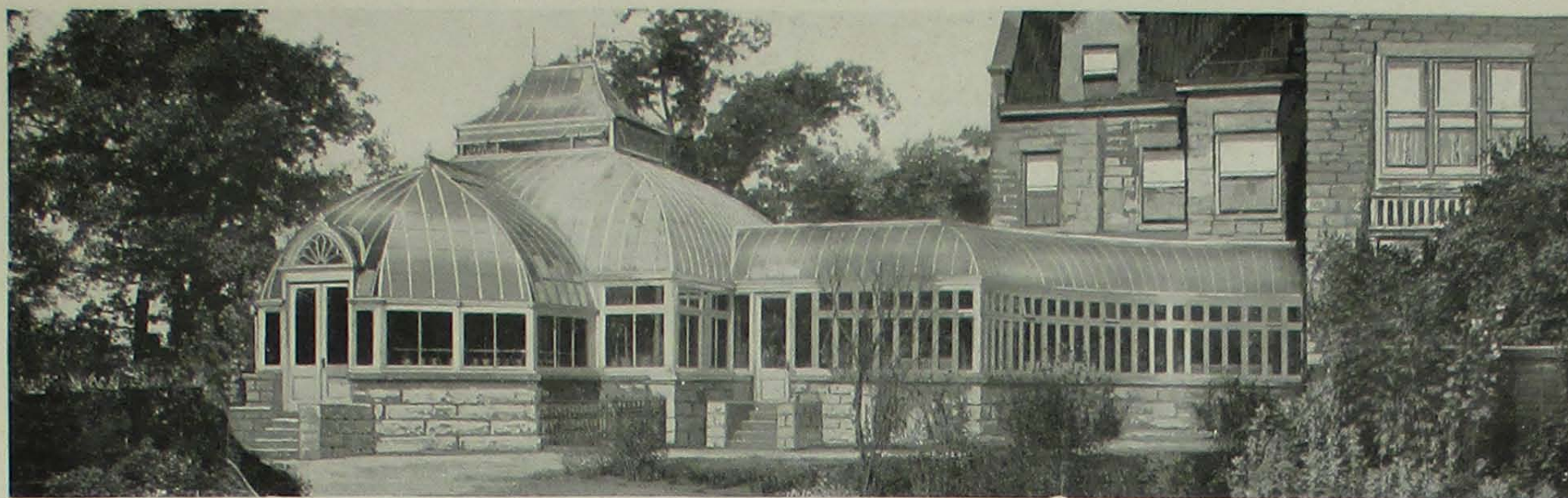
Number 582

ON THE southern side of Mr. Percy Roche's residence, was a jog that made an admirable location for a conservatory. Fortunately, it could open into the library, making a delightful accompaniment to one's reading.

Could you see it, you would heartily agree that it is in complementary harmony with the residence lines. The frame work is entirely steel.



Number 582—It was, indeed, a happy happening that this jog in Mr. Percy Roche's residence at Syracuse, N. Y., was on the southern side, as it formed an ideal location for the conservatory.



Number 583—Conservatory tropical garden erected for Mrs. Augusta Lehman, Chicago, Ill.
E. R. Krause, architect.

Two Unique Linkings

Number 583

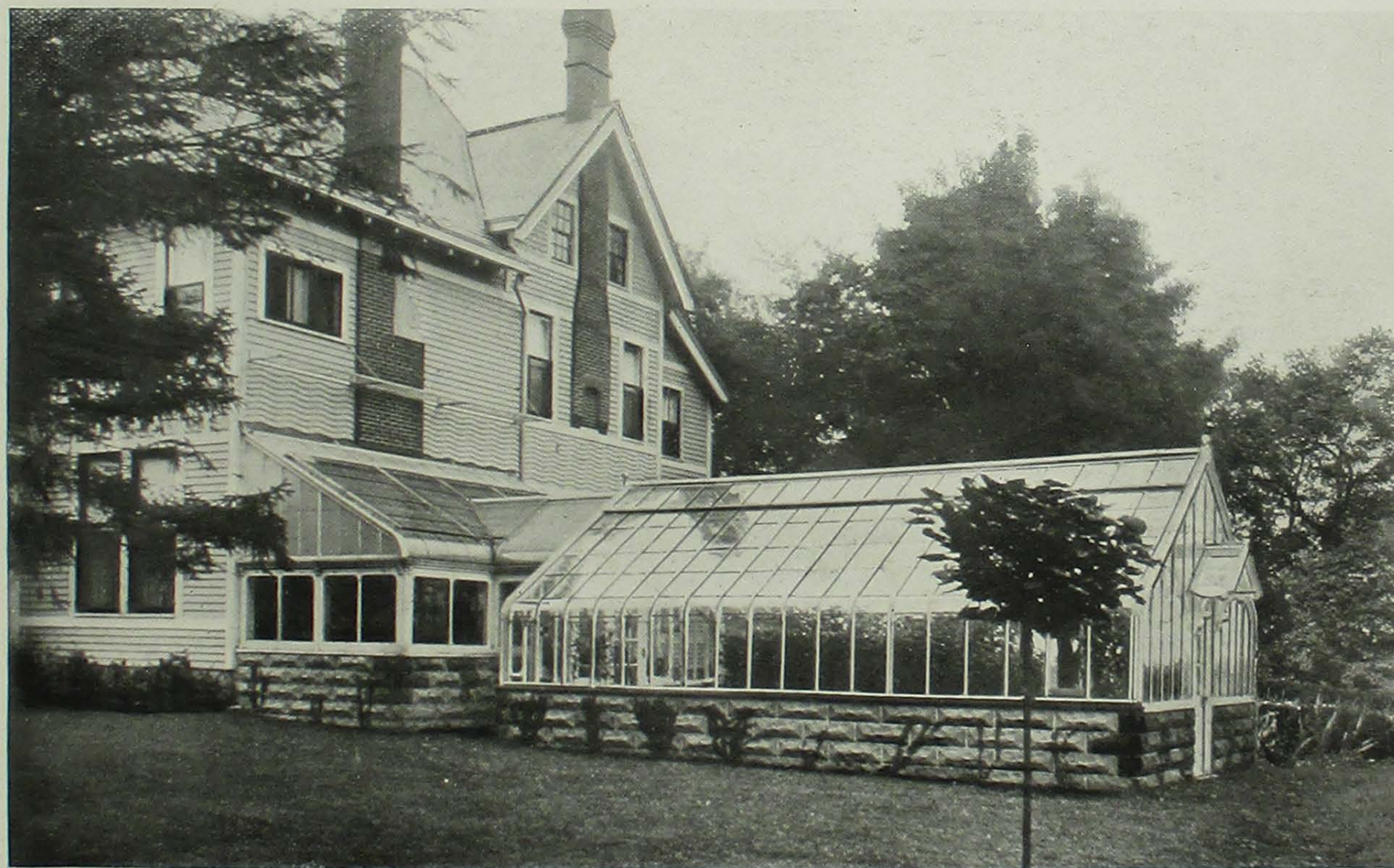
IN THIS conservatory of Mrs. Lehman's, two problems were successfully solved. None of the windows in the residence were sacrificed, and a limited city ground space was utilized to distinct advantage without marring the architecture of the glass structure.

It is, however, rather more than a conservatory, being in fact, a tropical garden. The winding glass corridor, with its graceful hanging baskets of ferns and orchids, is a sight that irresistibly lures you.

Number 584

MR. Whenham lives the year round out on his Farmstead place, a few miles from Painesville, Ohio.

In spite of one's love for the "real country," there are times in the Winter, when the yearning for Spring's sunshine and flowers is most disquieting. To satisfy just that yearning, we built this conservatory and greenhouse. In one he has a real flower garden. In the other, an ideal cosy comfort spot.



Number 584—The conservatory portion leads from the living room by a short flight of steps. The glass garden portion opens from the conservatory by a short passage. The enviable owner is Mr. R. Whenham, of Painesville, Ohio.



Number 585—Conservatory, adjoining Mrs. T. Eaton's residence at Toronto, Canada.

One of Decided Elegance

Number 585

MONEY was not spared to make this conservatory one of elegance, in every detail.

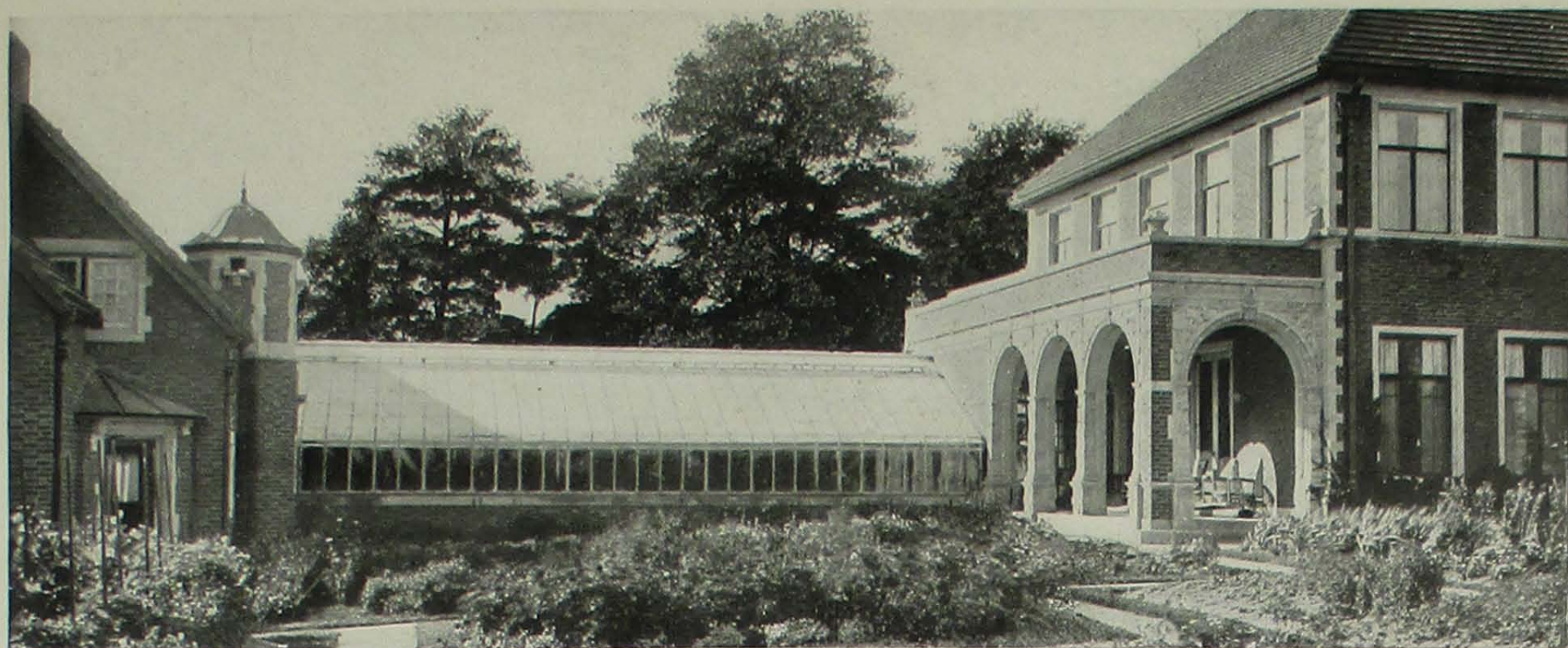
The frame work is entirely of steel. The wood on the sides is bronze covered. The plant tables around the sides are marble topped, and the grille behind

which the heating pipes are hidden, is burnished bronze.

At the end opposite the residence entrance is a moss bank filled with pendulous tropical growths and graceful swaying ferns. It is one of the finest appointed conservatories we have ever built.



Number 585-A—To soften the glare of the sun, the entire roof is hung with a cream silk canopy.

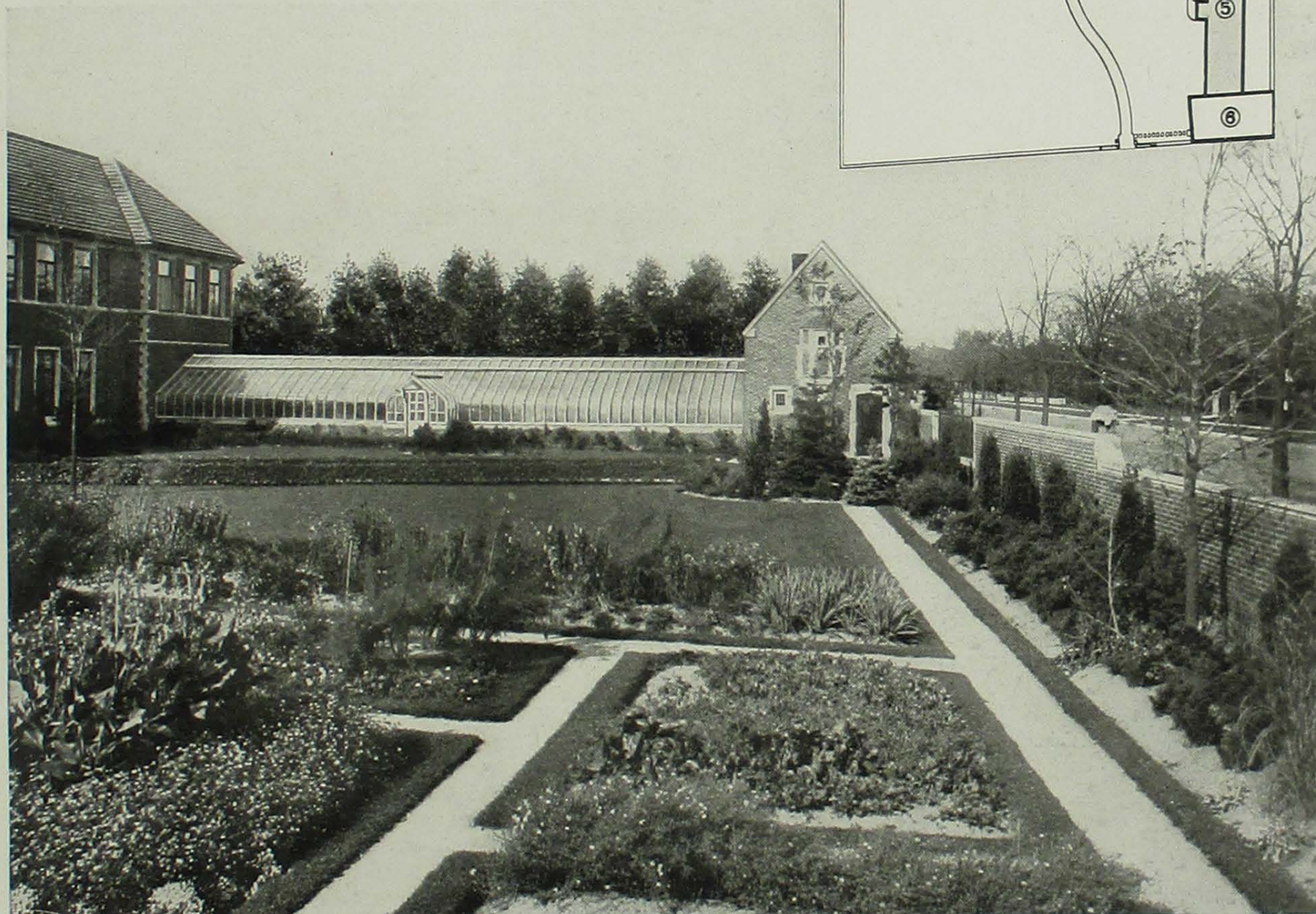
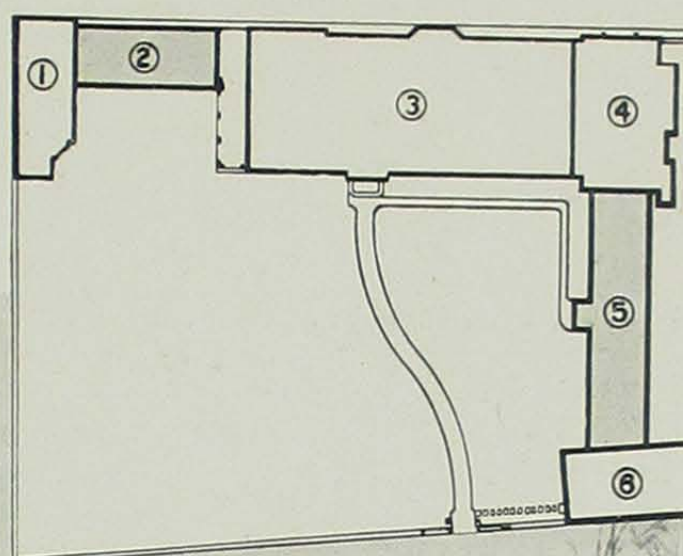


Number 586—The Floral Show House (Number 2 on the plan) opens from the tea room, and adjoins the cottage (1) and residence (3).

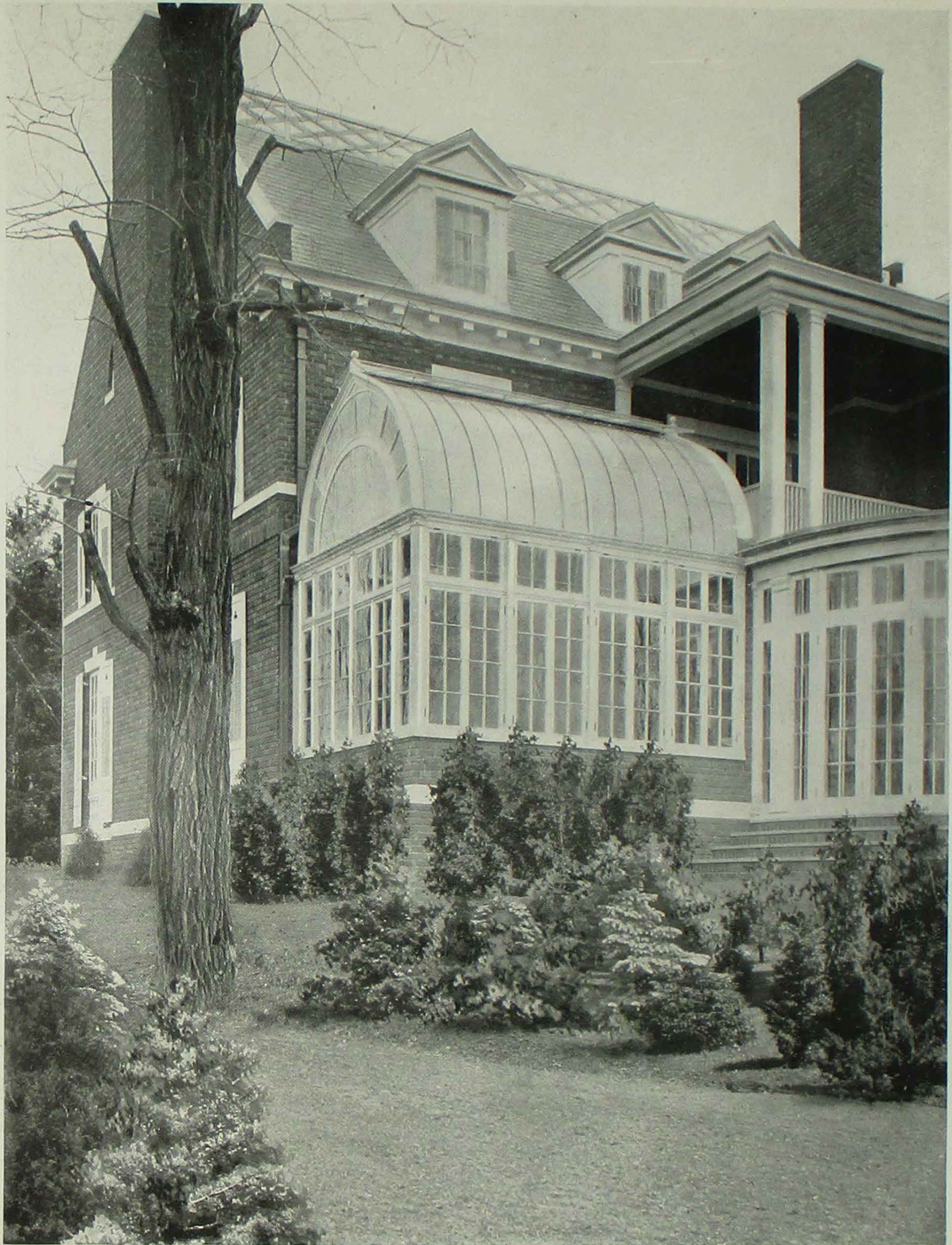
A Distinctive Departure

Number 586

YOUR first impression is that of a charming walled-in garden. Investigation proves that two sides are wall and the other two bounded by a cottage; a floral glass show house; the residence; garage; a greenhouse and a garden house.



Number 586-A—Looking across the garden the other way, you see the greenhouse (Number 5 on the plan) between the garage (4) and garden house (6).



Number 587—This is a striking result of our ability to co-operate with the architects, Messrs. Ogden, Prior & Day, who designed both the residence and conservatory for Mr. H. H. Bender, of White Plains, N. Y. The conservatory fittingly reflects the upright lines of the house. The usual conservatory lines in this association would have been unfortunate.

Glassed-in Porches

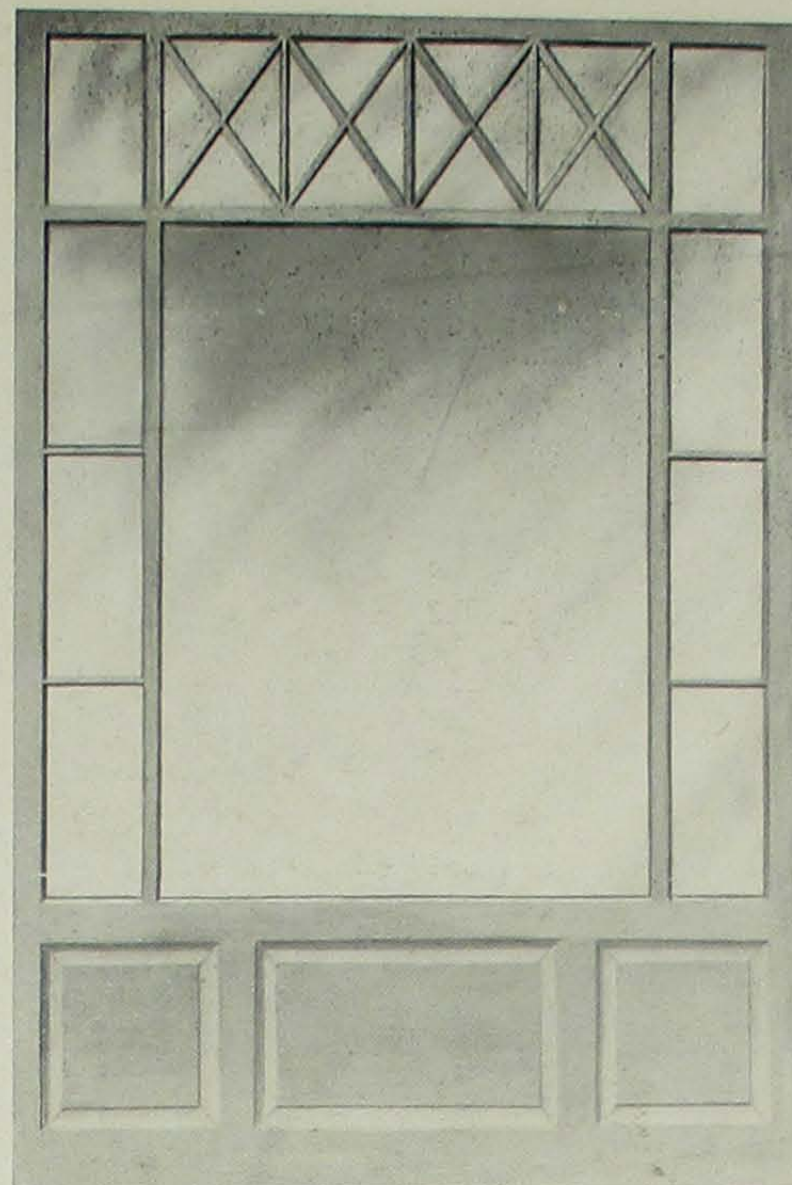


NOW that there is an ever increasing tendency to have one's country home in use the entire year, the enclosed porch has become a most enjoyable feature. Their delightful possibilities until recently have been but half developed, and now they are coming into their own as dining and living rooms. They can in most cases be heated by the existing residence boiler, the only extra expense being that of piping and radiators.

The combination sash and panels are made so they are readily removed and as easily put up, so that you can have all the advantages of both a closed and open porch.

We will come to your residence if desired, and take all measurements, and design the treatment of the sash so they will be in harmony with the lines of the house. They are then shipped from the factory, ready for immediate erection.

Although these enclosures do not take the place of conservatories, still many plants do well in them. As sun parlors they are a great success. As cozy, cheery spots in which to serve tea, they are admirable.



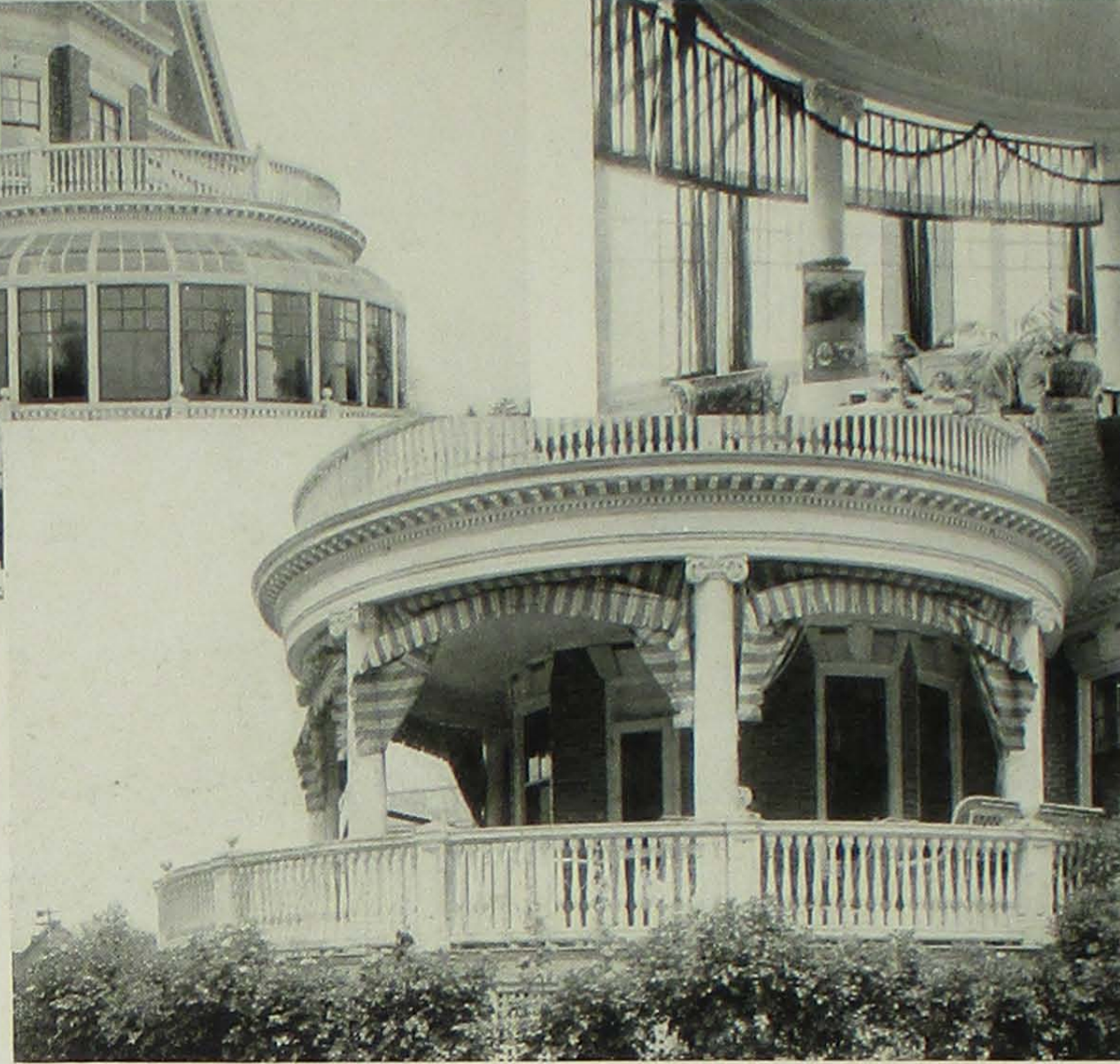
Number 588—One of the removable panel sashes in the porch below.



Number 588-A—This charming glassed-in porch is the much enjoyed possession of Mr. Leroy Frost at Nyack, N. Y. The outlook from it is a beautiful one for miles up and down the Hudson River



Number 589—When Jack Frost starts his nippings, the glass-in is put on, giving an uninterrupted use to the stoop.



Number 590—With the glass-in protection on, the stoop is converted into a delightful sunshiny room.

Number 591—When warm days return, the glass is removed again, giving all the freedom of the open.



Number 592—The sash are in this case left on the year around, the windows folding back, giving full opening for the summer months.



Number 592-A—With the windows closed, you are protected from the sharp air, while around you can be your plants and flowers.

Glass Enclosed Swimming Pools



THE enclosed pool seems to have become one of the expected adjuncts of the perfectly appointed place.

In the list of pleasing features conceived for the refreshment, comfort and entertainment of one's self and guests, such pools offer great attractions.

It happens that we were the first to glass enclose them. It was a happy thought that has gained great deserved popularity. It makes possible their use the year round, 'mid ideal conditions of temperature, sunshine, flowers, and dressing-room conveniences.

In Summer with the roof shaded, they give a seclusion, and assurances of the water being free from leaves, bugs and frogs.

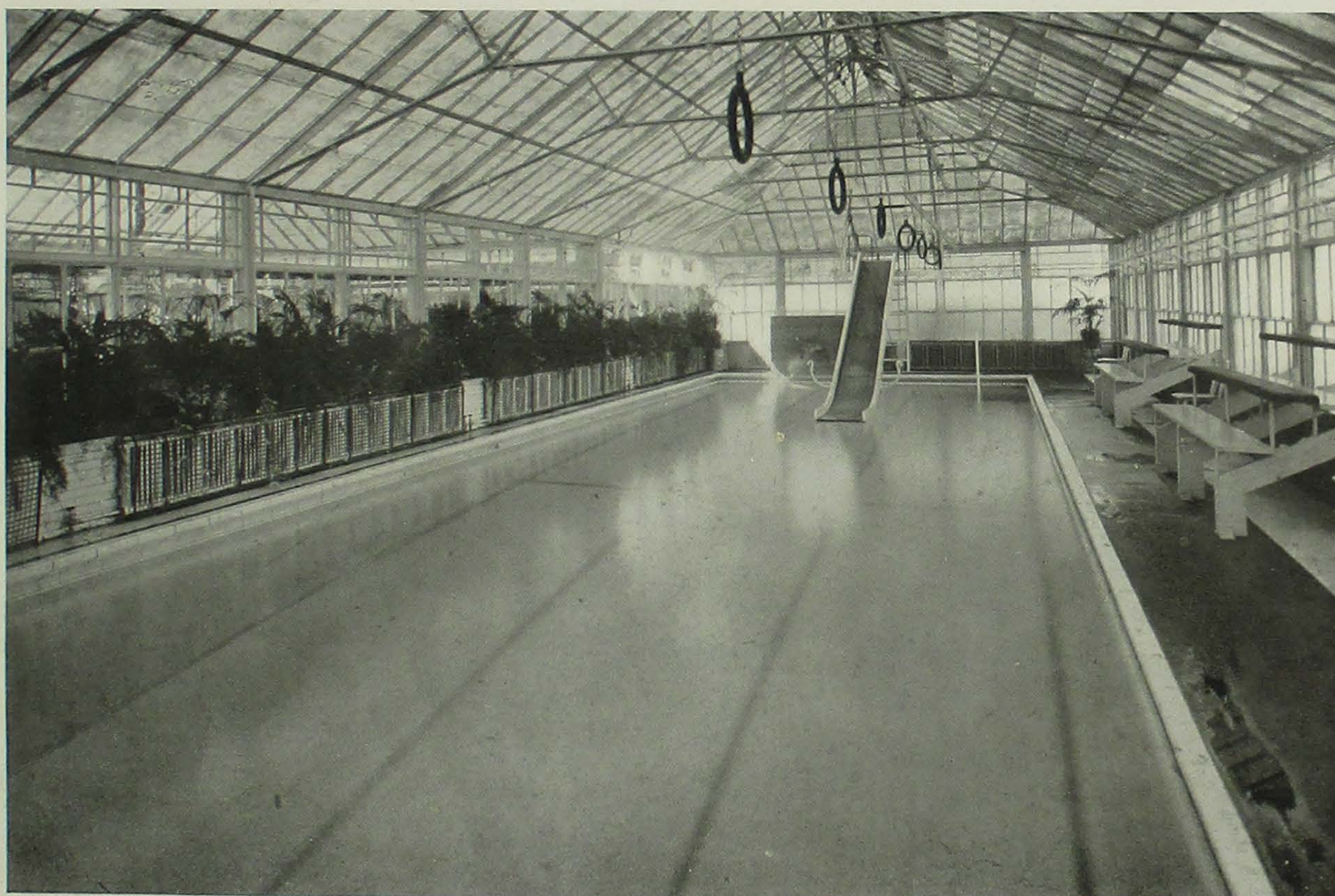
In the Winter, with the welcomed sunshine coming unhindered through the glass roof and sides, it gives you something of the zest and pleasure of the old swimming hole days, "when we were boys."

The complications incidental to the first structures we have now entirely overcome, and you can be assured a result highly satisfactory in every particular.

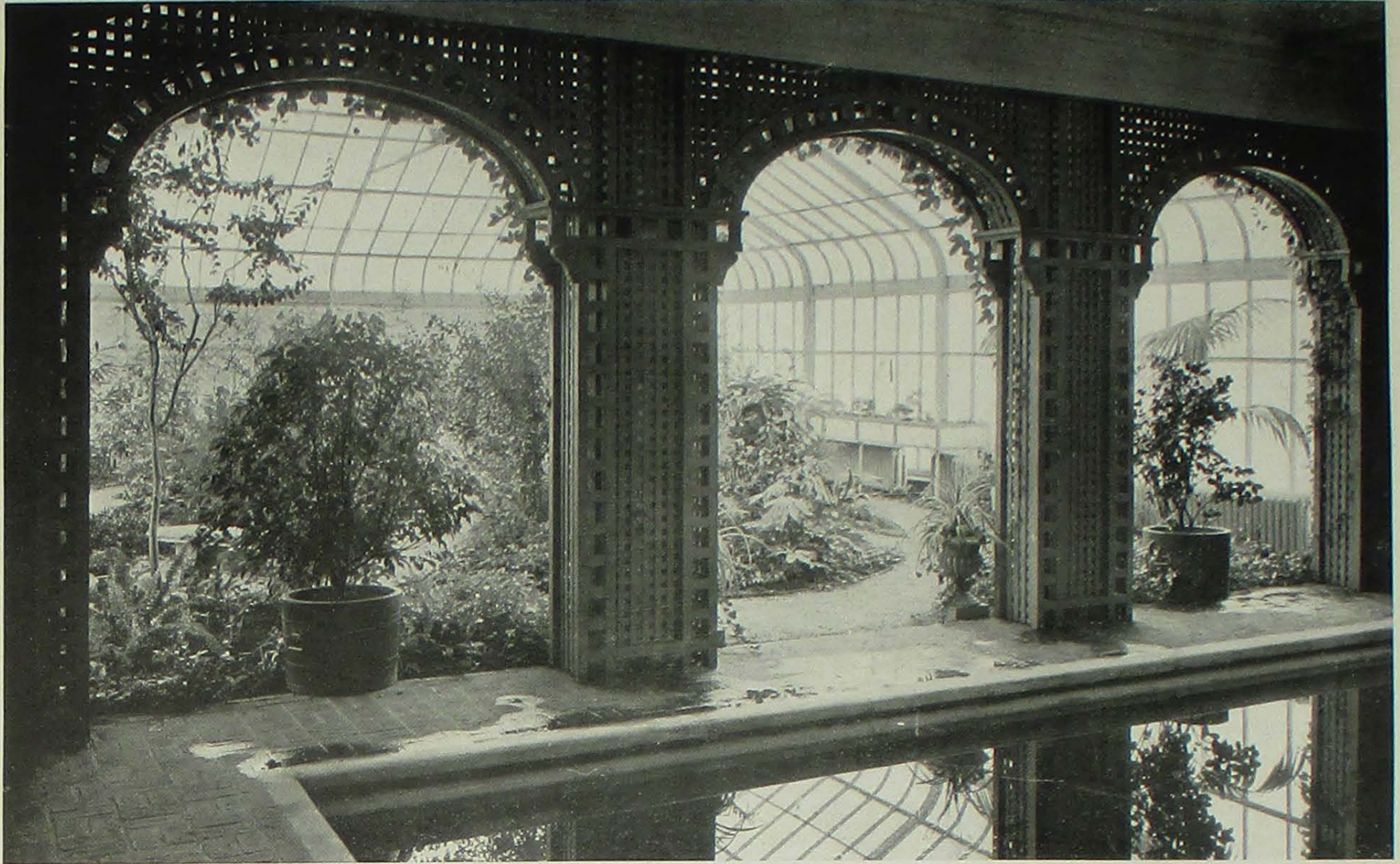
Let us submit suggestions for one that will fit your needs, location and pocket-book.



Number 593-A—Just a stone's toss from Mr. Louis Swift's residence at Lake Forest, Ill., is this glass enclosed swimming pool. It was designed by Mr. Swift's architect, B. H. Jillson.



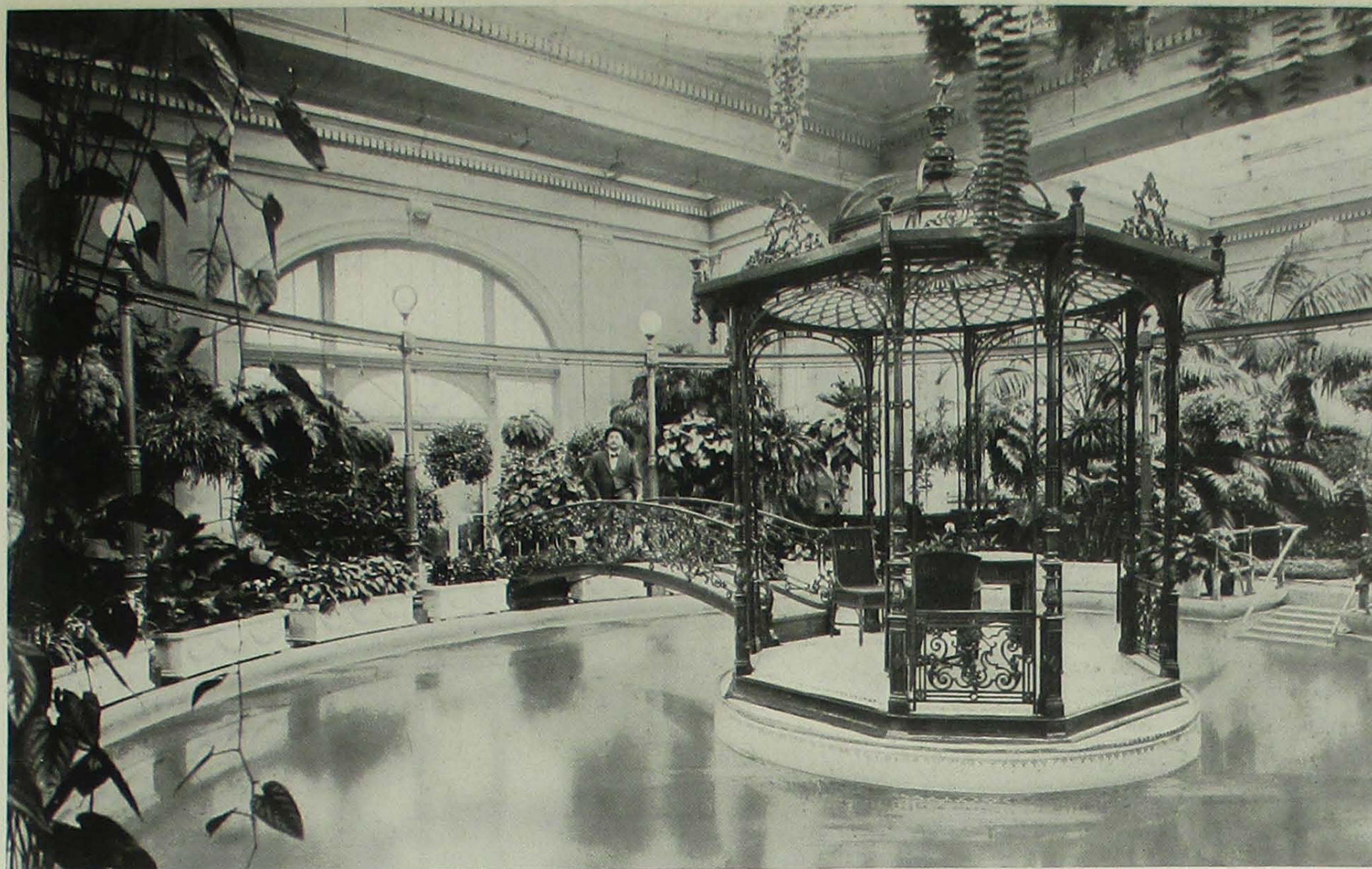
Number 593—This pool of Mr. Swift's is 61 feet long, 21 feet wide, and has a graduated depth from 5 feet to 9 feet, making it available to both young and old.



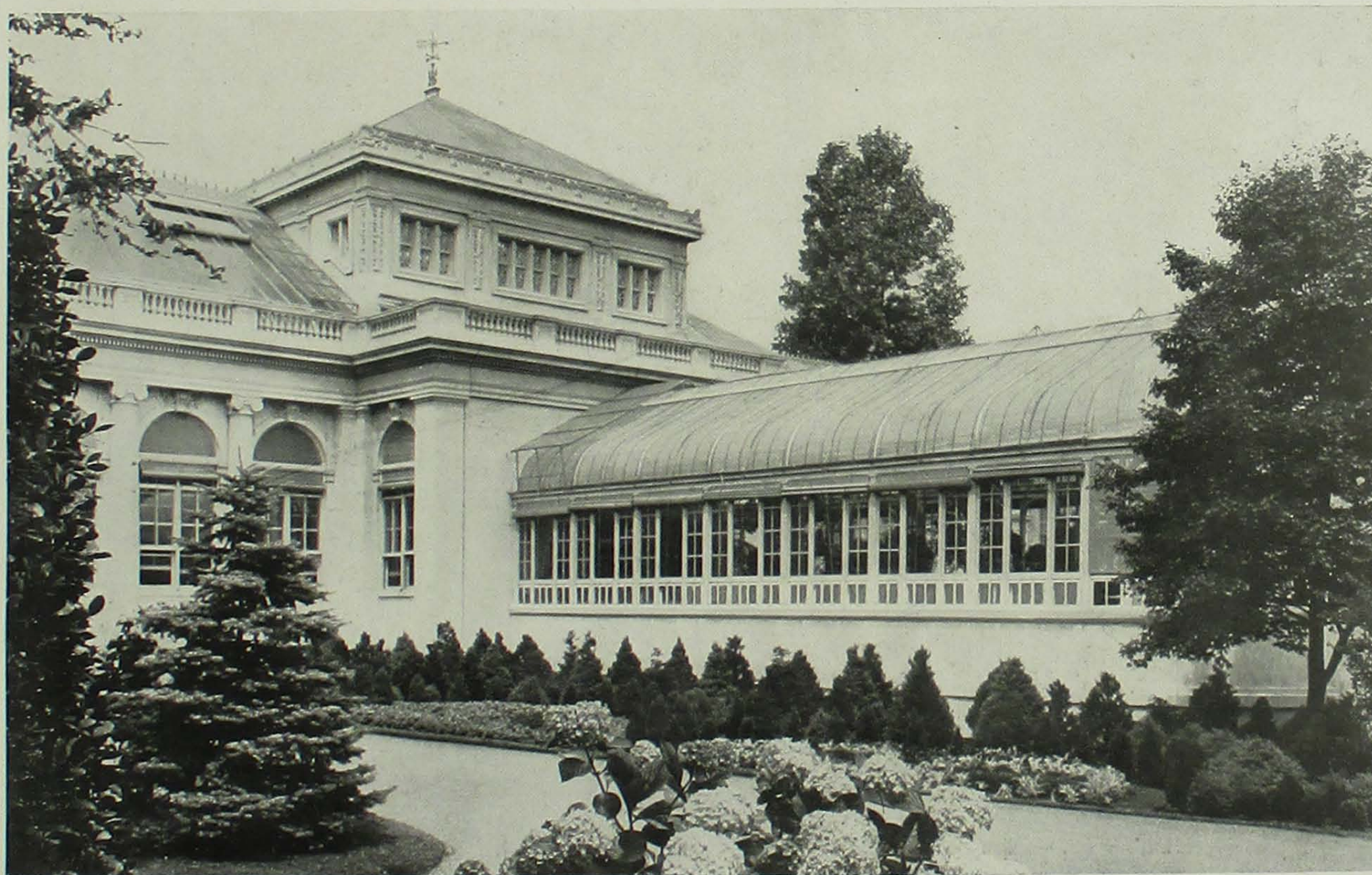
Number 594—Mr. C. L. Harding's pool at Dedham, Mass., although covered, is not glass enclosed. But opening as it does by broad latticed arches into a garden under glass, the association is as effective as it is pleasing.



Number 595—This one of F. M. Warburg's, White Plains, N. Y., was among the first we glass enclosed. It has many unique features. Chas. W. Leavitt, Jr., architect



Number 596—By far the most elaborate of any in this country, is the pool and associated glass gardens which we erected for Captain De La Mare, Glen Cove, L. I.
C. H. P. Gilbert, Architect.



Number 596-A—The pool is "under the dome." This is one of the glass gardens leading from it.



Number 597—Glimpse of W. H. Walker's tropical house, which forms one of the extensive group shown on page 34.



Number 598—Glimpse of the greenhouse erected for Green Mount Methodist Cemetery, Baltimore, Md.

Park and Cemetery Greenhouses

IN years gone by, it was only the purely utilitarian house that park and cemetery managements felt it consistent to put their money in.

In recent years, however, there has been a rapidly growing tendency to make such houses also ornamental. Large sums are being devoted to houses solely for the display of plants and flowers, and open to the public.

In connection with such houses must, of course, be those solely for growing purposes.

A glance at the names below, will give you an inkling of the part we are playing in greenhouse equipping of parks and cemeteries.

Central Park, N. Y.
Forest Hill Cemetery,
Forest Hill, Mass.
Des Moines Park, Des
Moines, Iowa.

Highland Park,
Rochester, N. Y.

Delaware Park, Buffalo, N. Y.

Hartford Park, Hartford, Conn.

Union Cemetery, Calgary, Alta., Canada.

Oak Ridge Cemetery, Bellwood, Ill.

Oakland Cemetery, St. Paul, Minn.

Oakwood Cemetery, Troy, N. Y.

Catholic Cemetery

Assn., Fort Wayne, Ind.

Garfield Park, Indianapolis, Ind.

Assiniboine Park, Winnipeg, Canada.

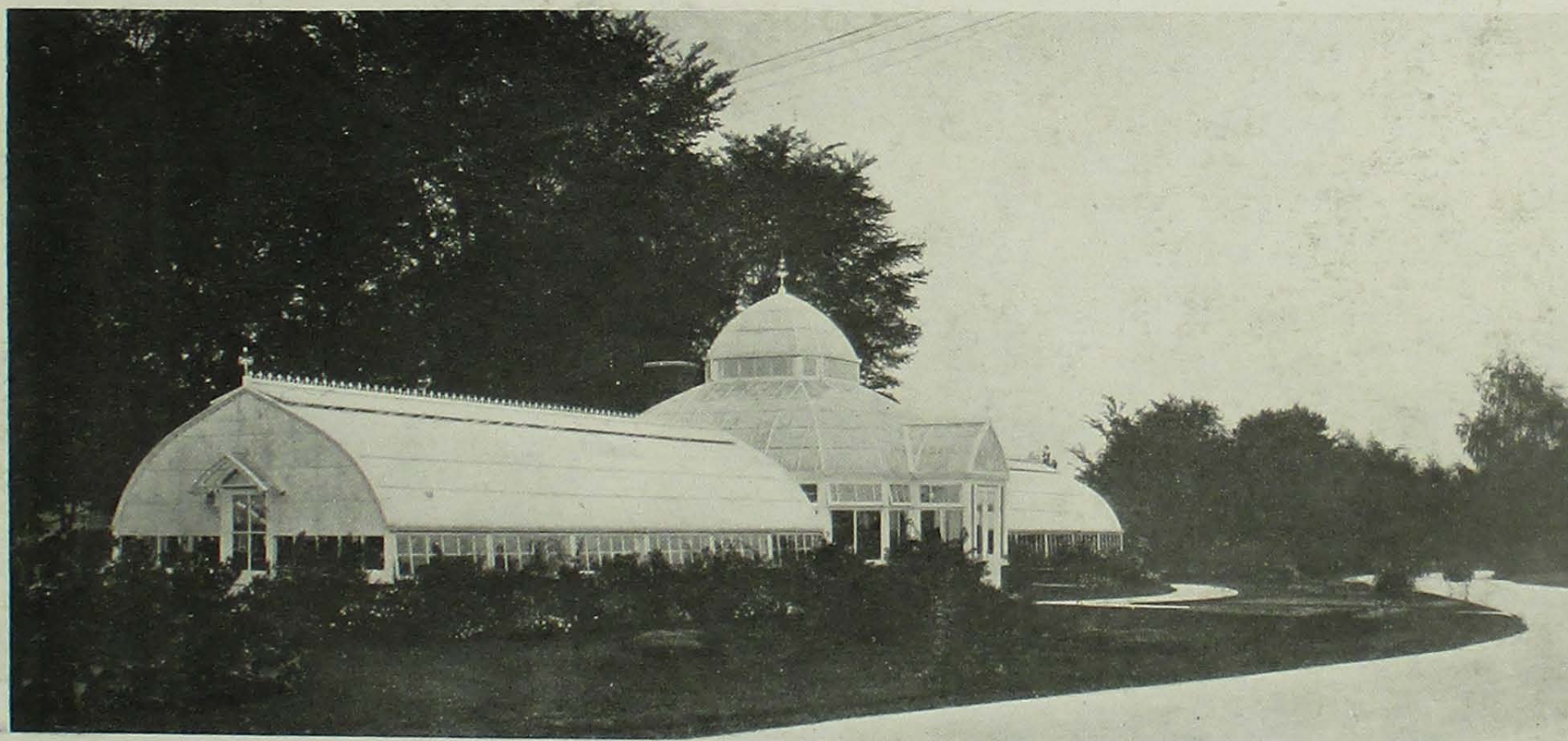
Allegheny Cemetery, Pittsburg, Pa.

Belle Island Park, Detroit, Mich.

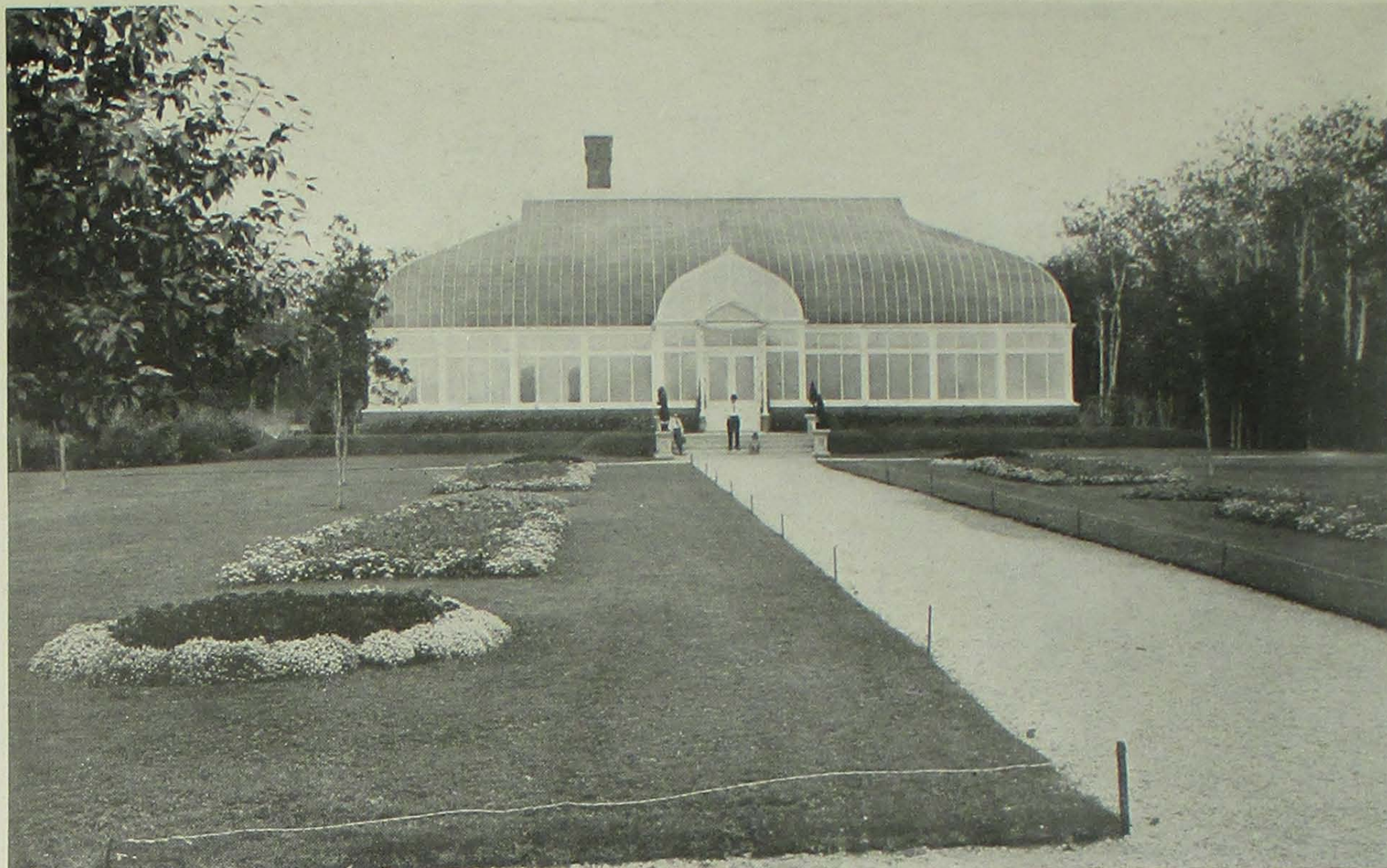
Paterson Park, Baltimore, Md.

Prospect Park, Brooklyn, N. Y.

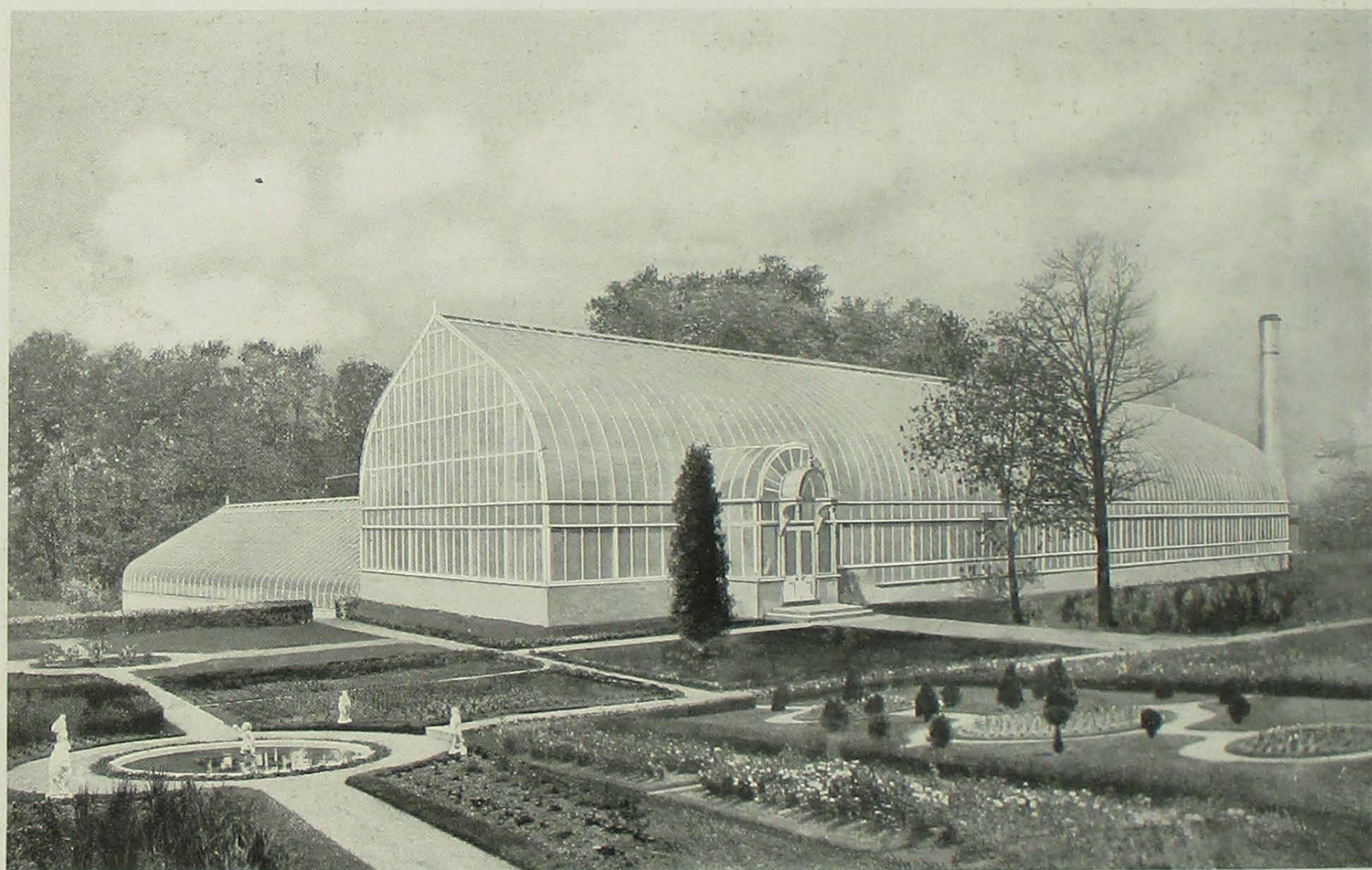
Sandusky City Park, Sandusky, O.



Number 598-A—The City of Davenport, Iowa, ordered these houses for Central Park. We put them up in the middle of Winter when the mercury was registering below zero. In addition to what you see, there are propagating houses adjoining either side of the work room, which is directly behind the palm house in center.



Number 599—This mammoth palm and show house is but the starting unit of other houses to be erected by Assiniboine Park, Winnipeg, Canada.



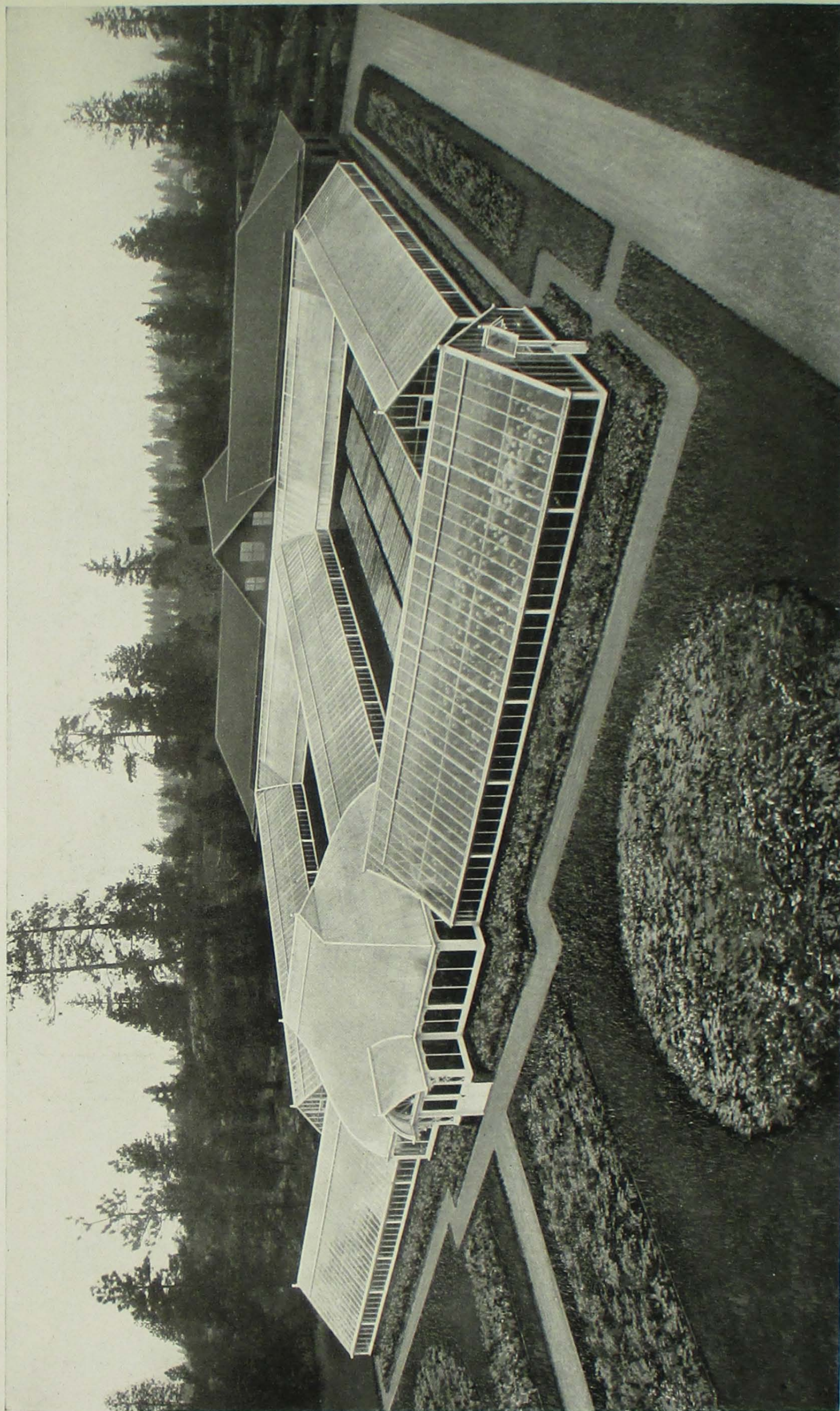
Number 600—The famous show house at the St. Louis Botanical Gardens, St. Louis, Mo. Practical Purpose and Experimental Houses are at the back.



Number 600-A—From the entrance landing, in the St. Louis Botanical Gardens show house, you get a sweeping bird's-eye view of the floral display in the garden below.

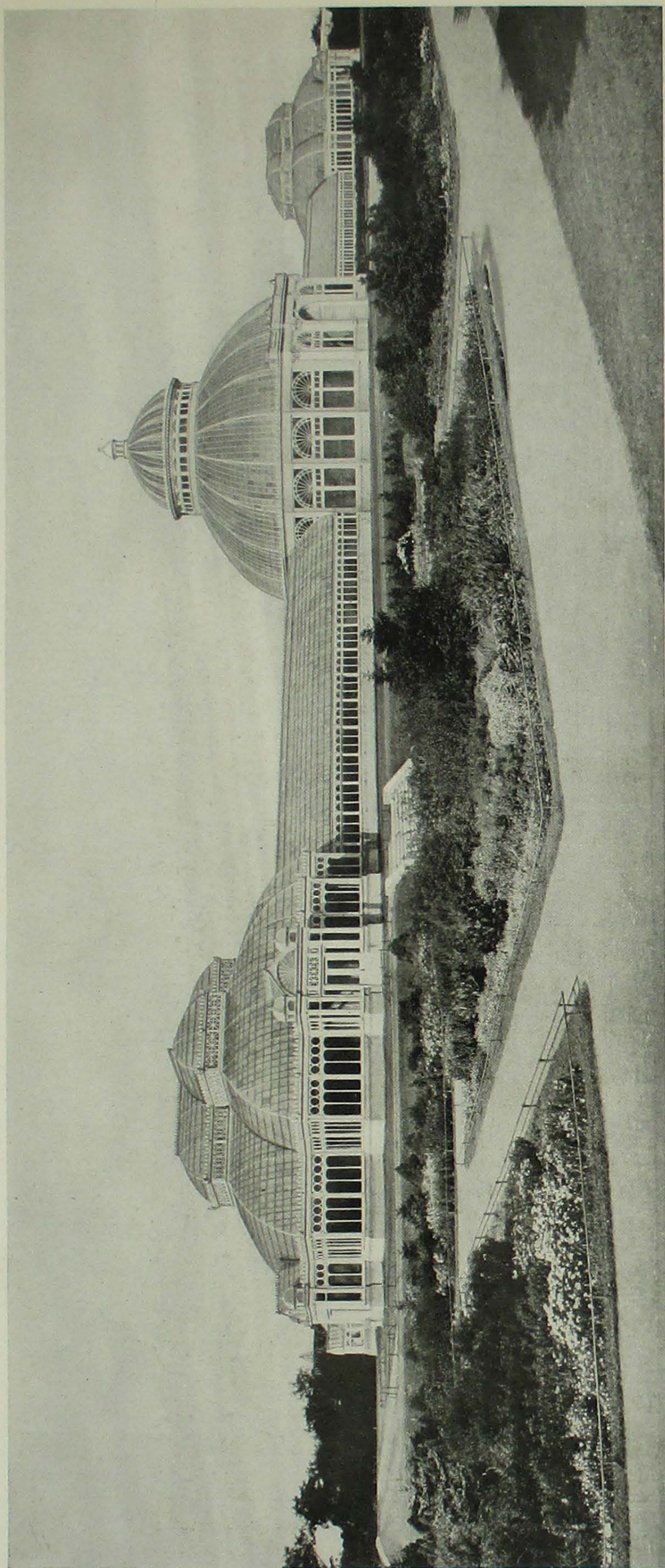


Number 600-B—Looking up to the landing from the garden. The pool between the stairways is a never ceasing source of interest.

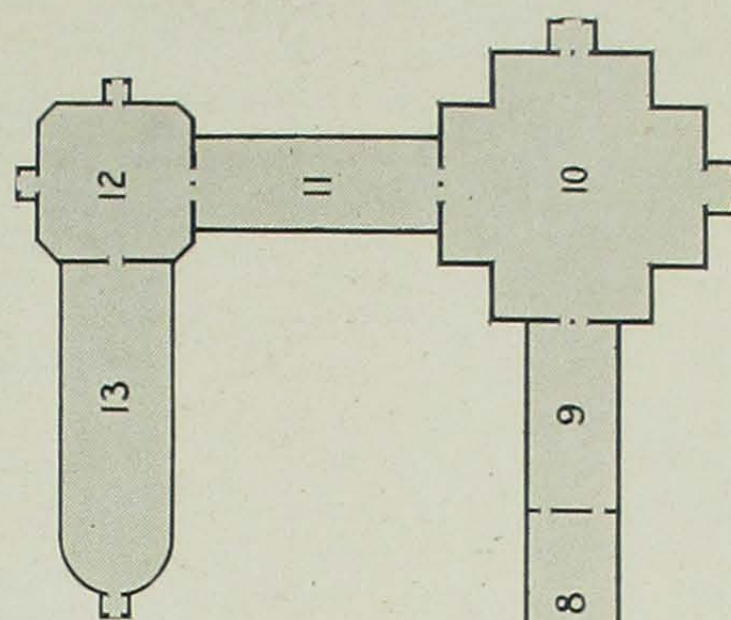
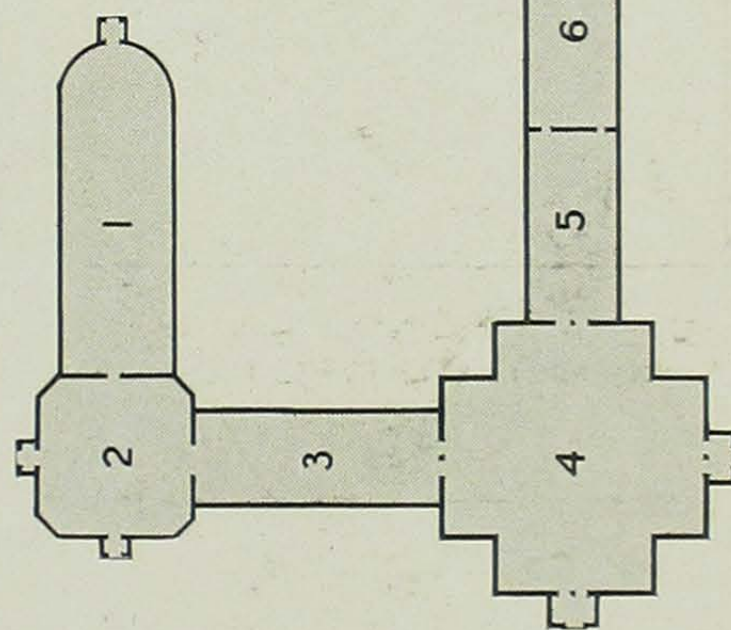


Number 601—This layout at Spokane Park, Spokane, Wash., has attracted much attention among park heads; not alone because of its size, but on account of the exceptional all-around practicalness of the plan. Altho the glassed-over area is large, still the layout is compact. Altho compact, the growing conditions of each house have not been sacrificed.

It is economical to heat and work. It is pleasing in its effect on the grounds. And it is constructed with our special iron frame, in a way that makes it a range of Everlasting Lastingness. If you want a house that is carefully planned and carefully constructed by a careful concern, then we would like to hear from you.



Number 602—The Conservatories, New York Botanical Garden, Bronx Park, New York City. That this building is regarded by eminent horticulturists as "the finest



horticultural structure in the world," is a point of no little satisfaction to us, as we designed it and had full supervision of its erection.

Plant Benches and Tables

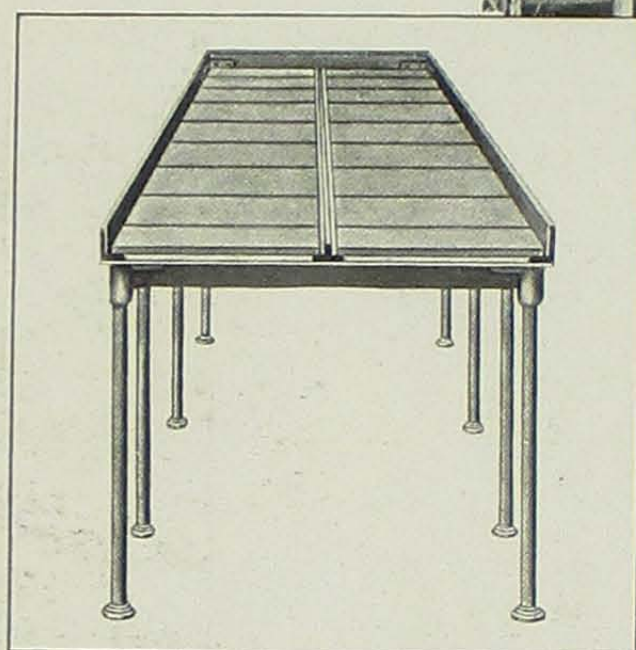
EXCEPT in cases where you may incline to grow your plants directly in the soil of the greenhouse, as is frequently done in connection with palm houses, you will need tables and benches.

Benches are made with deep sides for holding the soil, in which the plants are directly grown. The entire framework of the better quality is of galvanized steel, with cypress sides and either tile or cypress bottoms. The fact that the porous tile absorbs and holds the moisture, and gives good drainage, is sufficient reason, some gardeners feel, for their use. Many of them, however, prefer cypress for the bottoms, because it overcomes the brittle breaking of the tile and makes it easier to shovel the dirt out in emptying the benches in the soil renewing operation.

We also make a bench having a complete cypress frame, with cypress sides and bottom. As good as this bench is, nevertheless, we heartily recommend the complete steel frame, because of its greater durability and neatness of appearance.

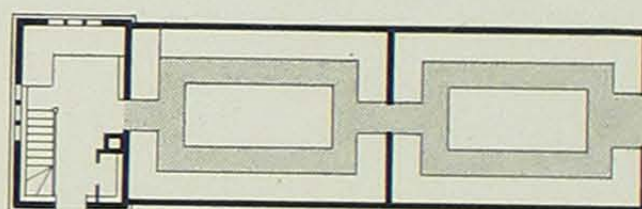
Tables have narrow sides and are intended only for holding potted plants in palm houses and conservatories.

No soil is placed on the tables. These tables are made with a complete galvanized iron frame, which is joined together by cast iron fittings and supported by pipe posts set in disk foot pieces. The tops are usually of planed slate, three-quarters of an inch thick. Board tops of dressed cypress, however, are quite as practical as long as they last, and can be easily replaced.

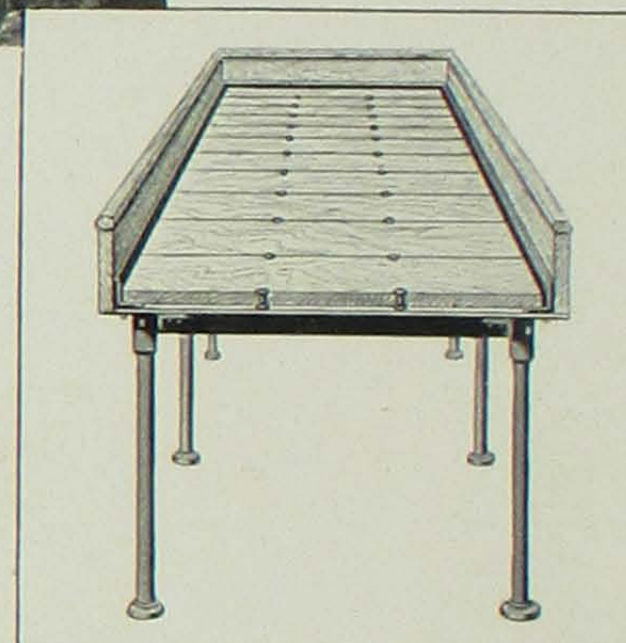


Number 605—Table with steel frame and sides and slate bottoms.

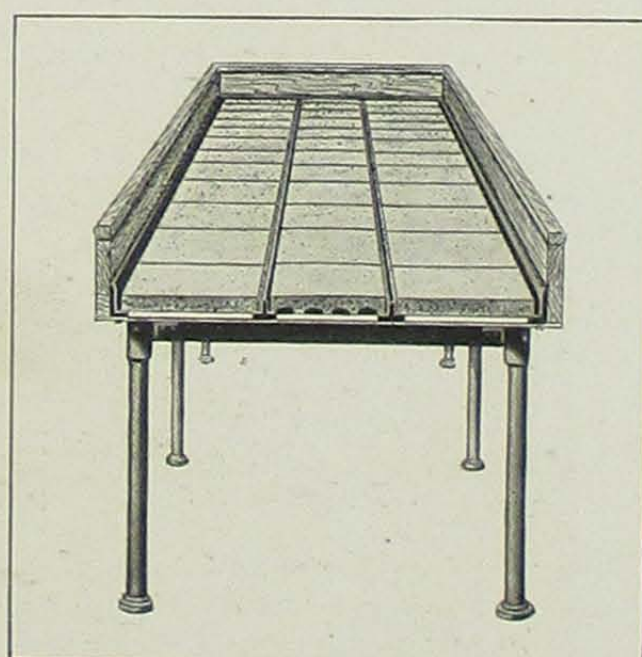
Number 603—Glimpse of the end, side and center benches in a 3 bench house 18 feet wide. Their frame work is entirely of galvanized steel. The sides and bottoms are cypress.



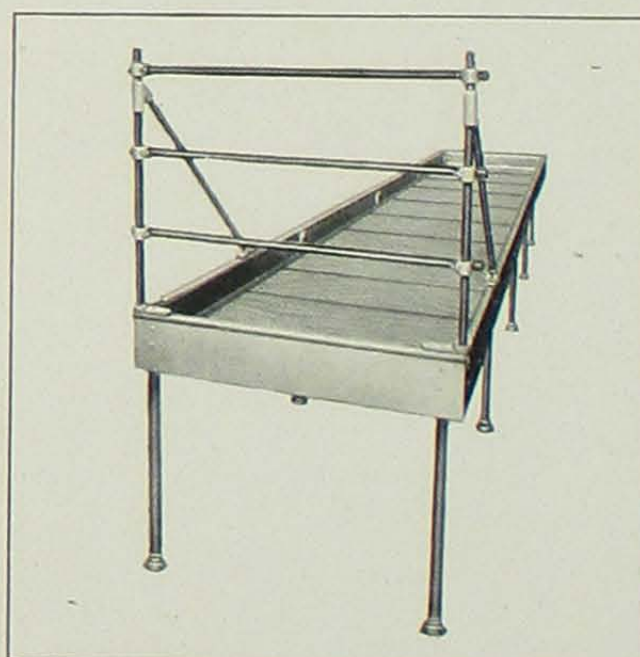
Number 604—This plan shows the bench arrangement in a 3 bench house. Dark portions are walks.



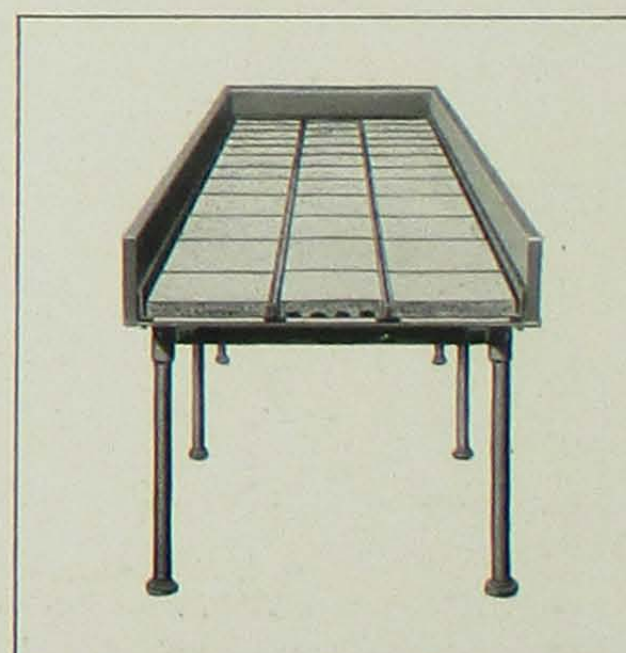
Number 606—Bench having steel frame, cypress sides and bottoms.



Number 607—Bench with steel frame, cypress sides and tile bottom.



Number 608—Bench equipped with adjustable wiring frame for supporting roses and carnations.



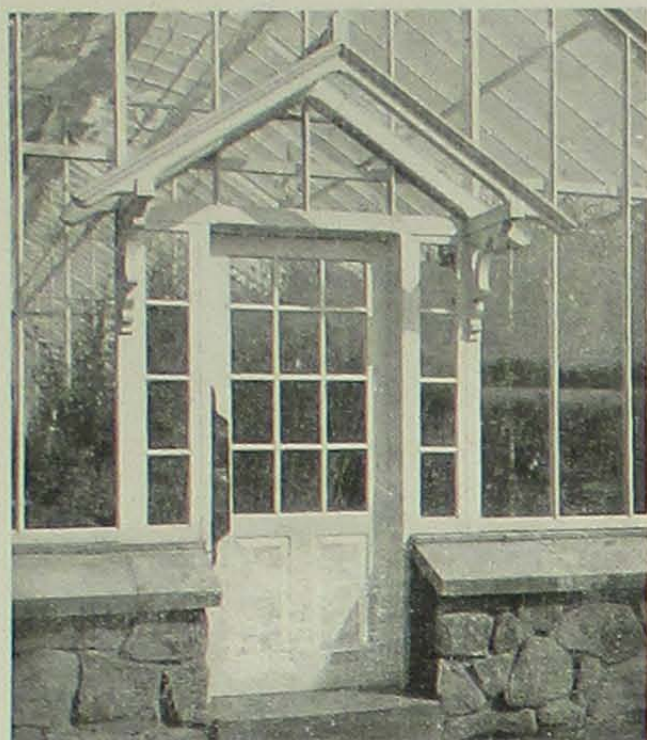
Number 609—Bench with steel frame, slate sides and tile bottom.

Entrances and Vestibules



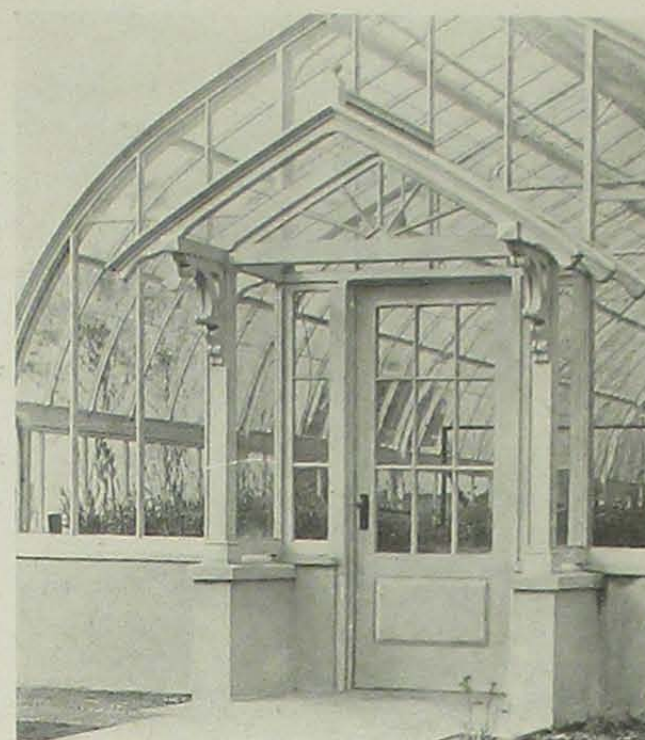
VESTIBULES are not always essential still they often serve the purpose of protecting tender plants from the direct chill of the outside air, and unquestionably add much to the architectural effect of the house.

Much thought should be given to their consistent treatment so that they will conform harmoniously with the greenhouse without the sacrifice of utility to design.



Design A

Design A. This type of door with its small lights of glass and glazed side panel treatment is a departure from the usual, that works out most effectively.



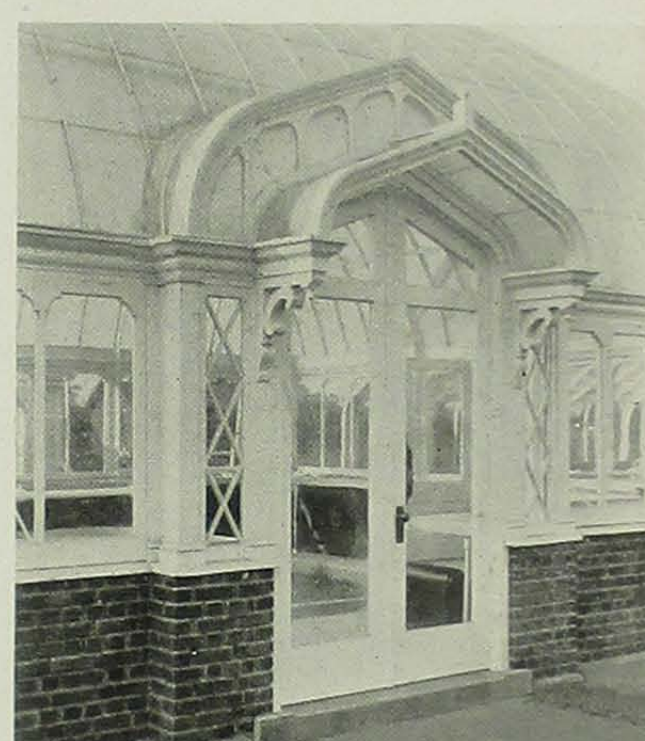
Design B

Design B. Where an ornamental entrance is desired without undue expense, this open vestibule has its good points.



Design C

Design C. Side entrance of a pure Colonial design that is especially pleasing used with the curved roof house.



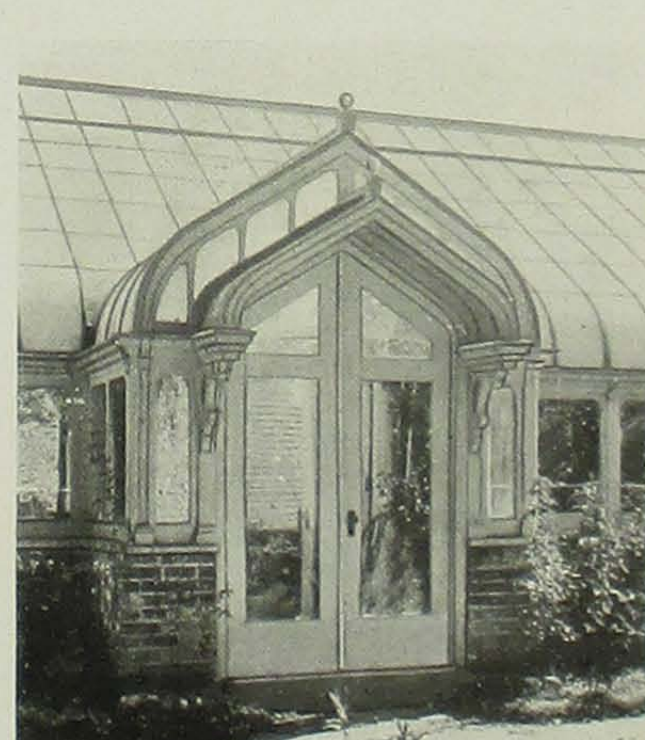
Design D

Design D. A palm house semi-vestibule that is as unusual as it is choice in design.



Design E

Design E. In its frank simplicity lies the charm of this vestibule.



Design F

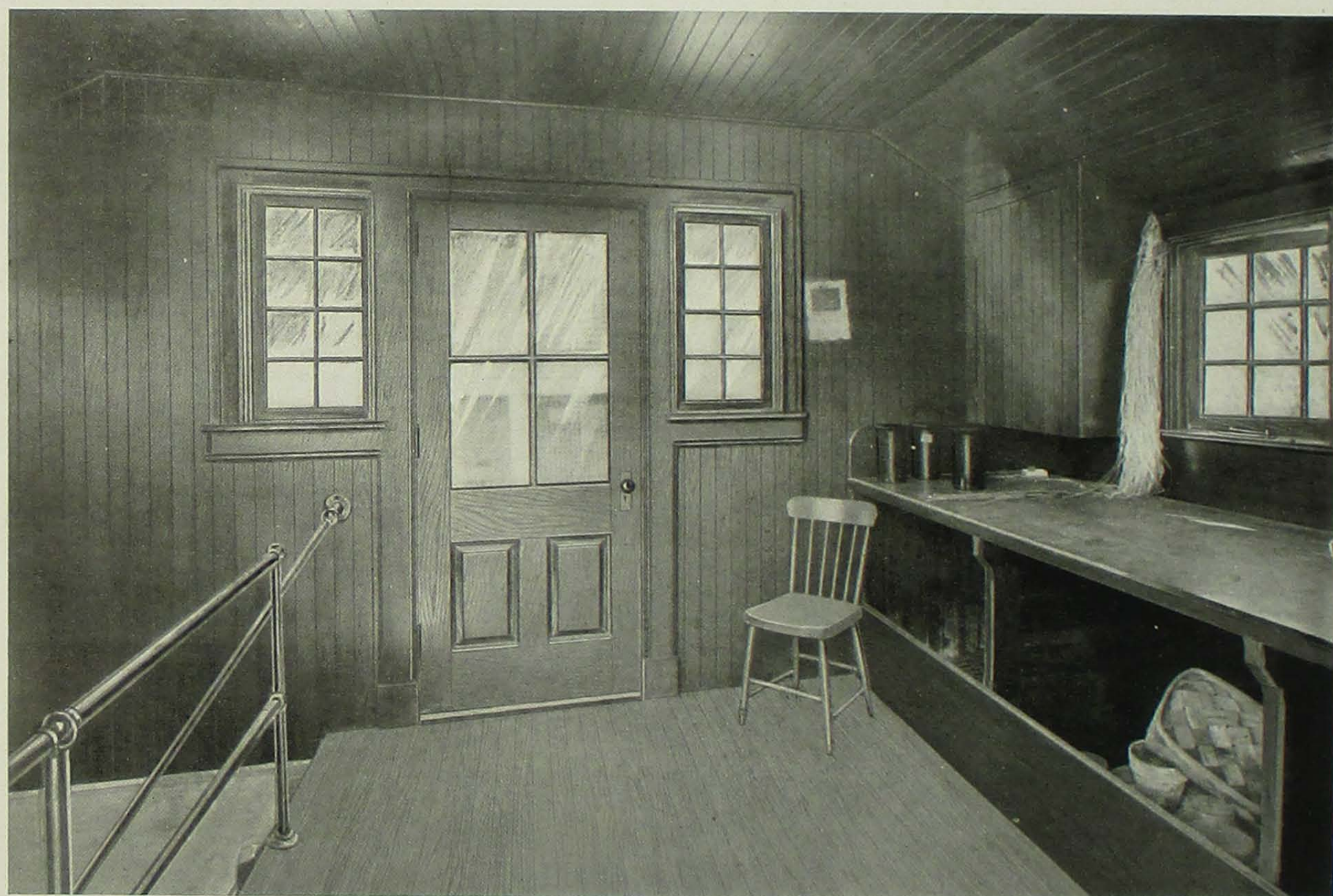
Design F. Vestibule with hood effect. One we use extensively.

Work Rooms

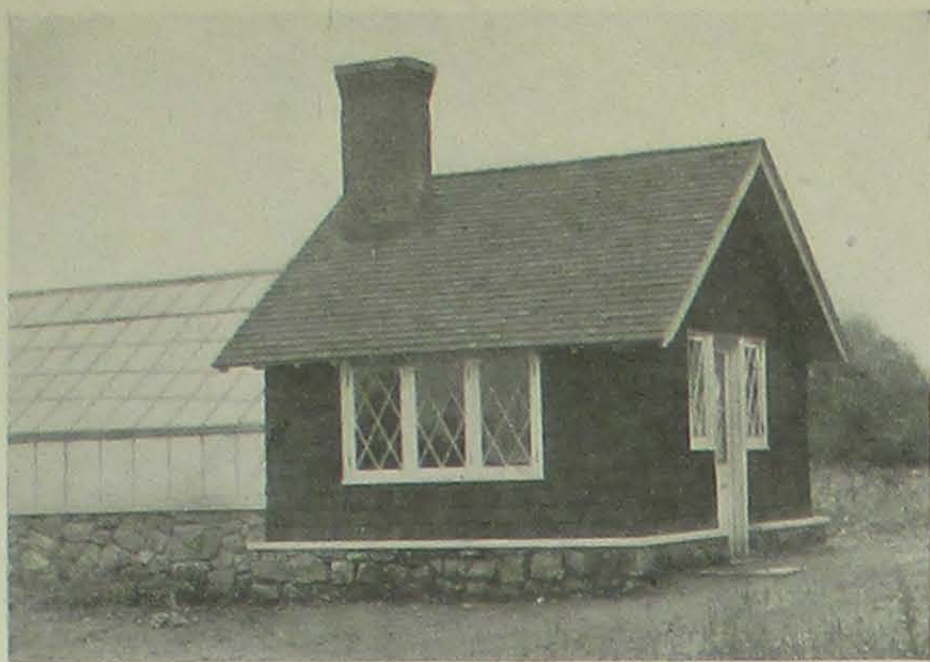


WORK ROOMS are for the purpose of having a convenient place to do the potting and to hold the bins for storing soil during the Winter months. In cases of extensive ranges where the potting rooms are provided with soil bins, packing space and tables for shipping flowers; refrigerator, man's room, and so on, we call them "service buildings." In either case, they are usually placed over the boiler cellar and coal bin. Frequently, it is possible to utilize part of the garden house or other building and place a cellar under it, making every bit as good an arrangement.

Sometimes, a part is divided off for the storing of garden tools, or an additional room planned, either upstairs or down, which is often used for office or sleeping room. When it forms one of a group of buildings requiring a similar architectural effect, we design it accordingly. It is possible to make these little houses exceedingly attractive, and fit them up elaborately, with tile floor, slate benches, pot racks, toilet, and even an ice box. If desired, we will gladly design and build them for you. If you were to seek our advice, would suggest keeping them inexpensive, and place the extra money directly in the greenhouse, from which you get the actual results.



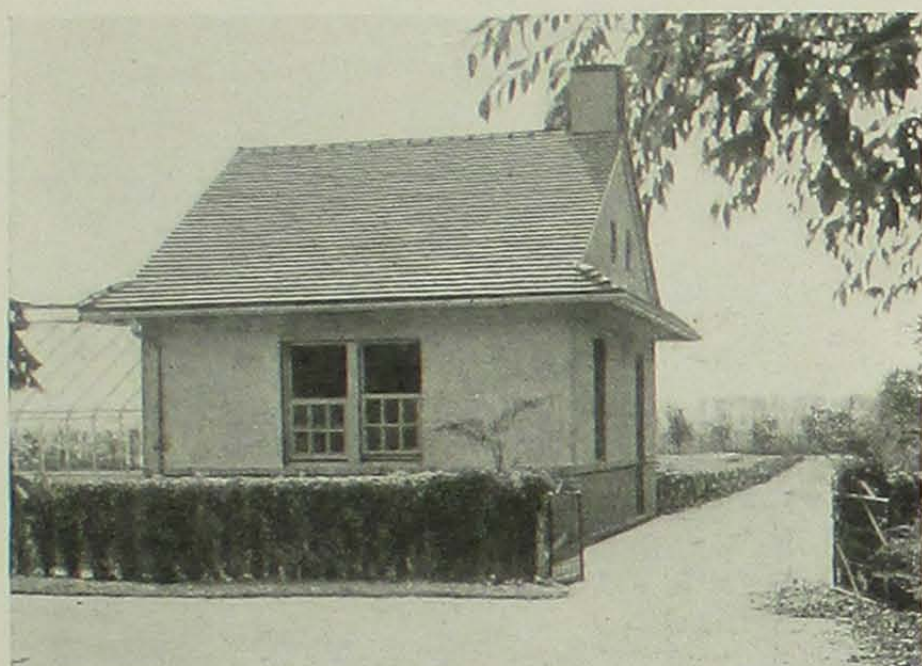
Number 610—You can get an idea from this how we arrange the moderate priced ones, with bench, soil bins and an open cellar (protected by iron railings) for the boiler. If you intend doing any of the greenhouse work yourself, you will become greatly attached to these compact little houses with the casement windows opening over your potting bench—it means many a pleasant hour spent there.



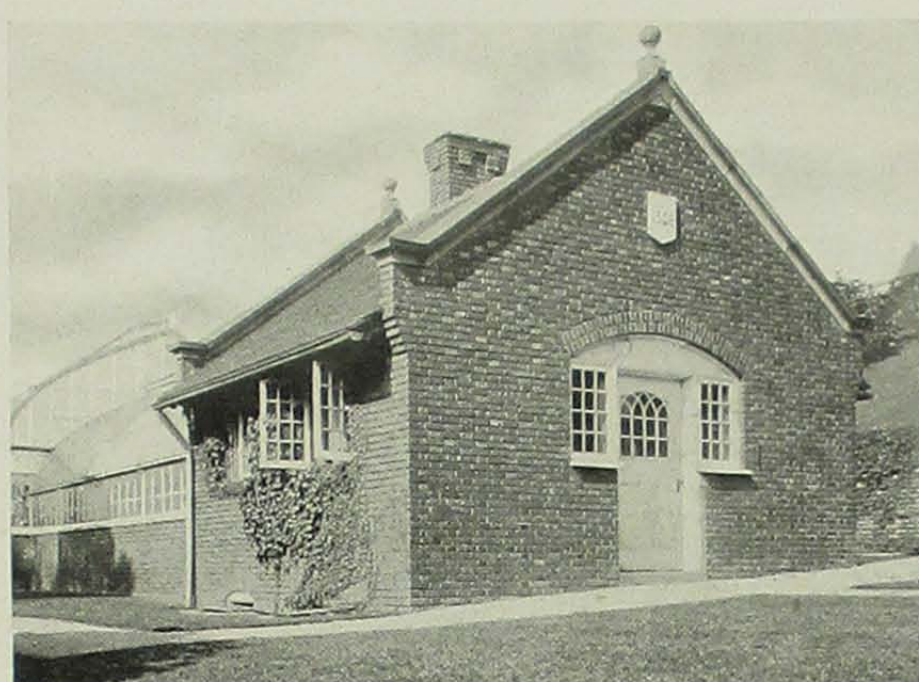
Number 611—This one shows the attractive effect of our overhang roof, with diamond-paned windows and green shingled sides.



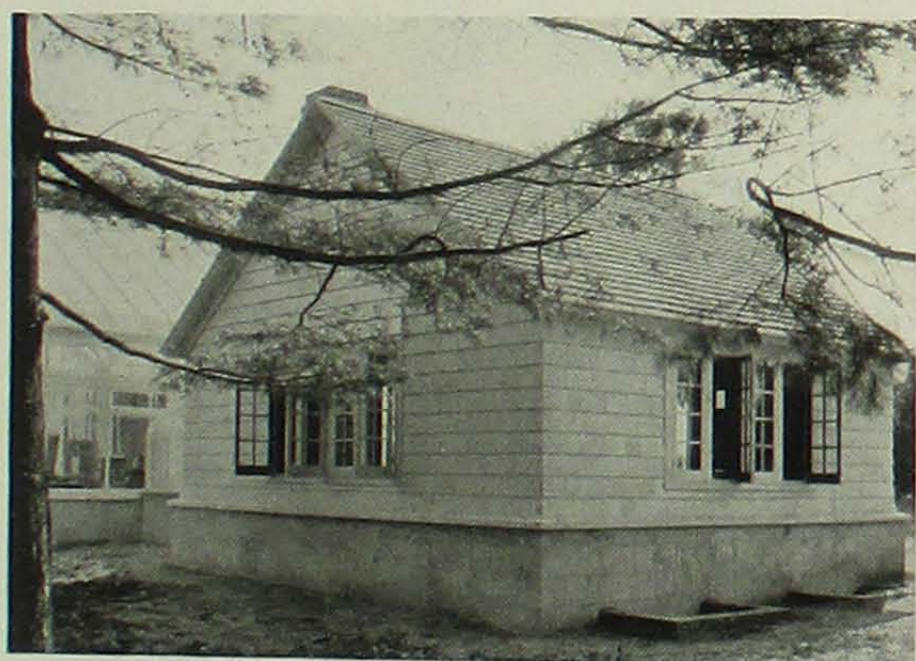
Number 614—A pleasing stucco treatment. Simplicity still the keynote. Part of this is divided off for the superintendent's office.



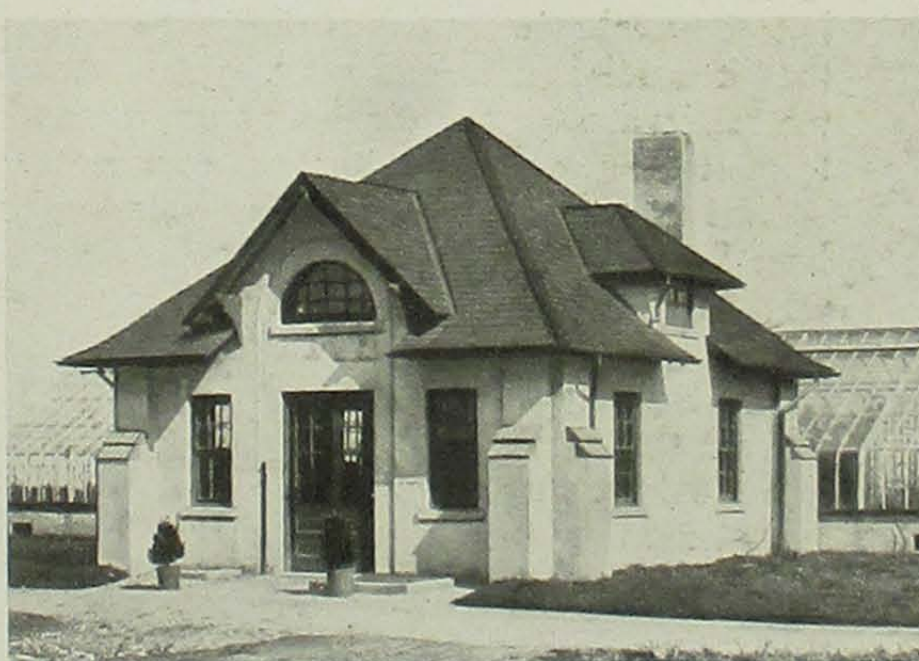
Number 612—For a snug little stucco work room especially adapted to a house from 33 to 100 feet long, this one is admirable.



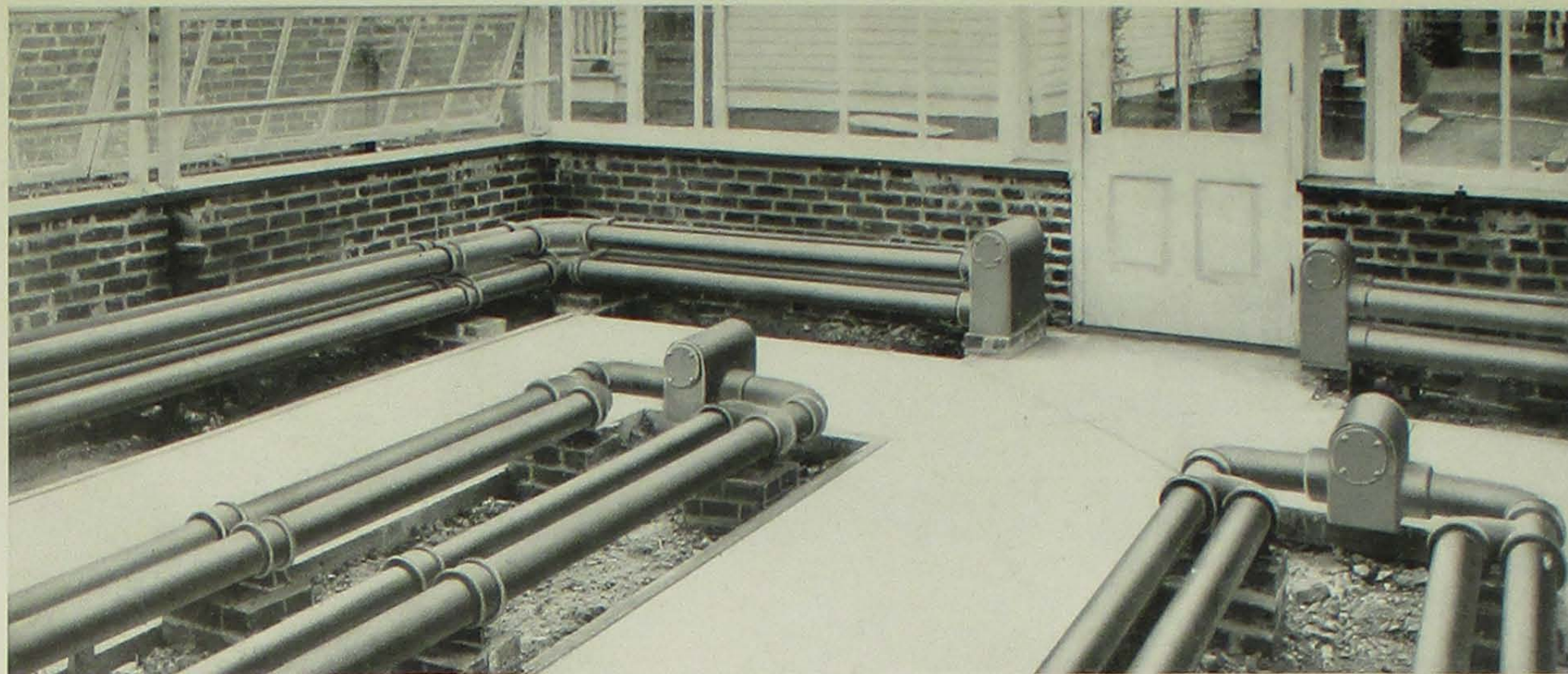
Number 615—With the greenhouse foundation of brick, the work room when constructed of the same material can be worked out in a very pleasing way.



Number 613—Simple, practical and moderate in cost. Shingle sides can be substituted for clapboards.

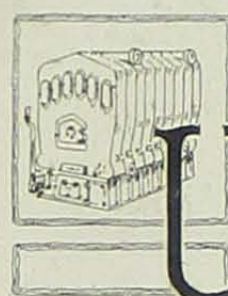


Number 616—Reflecting the treatment of the nearby buildings, this work room "fits into the picture" most effectively.



Number 617—To show you just how the hot water pipes are arranged when placed under the side and center benches, the photograph was taken before these benches were in place. The fittings at the ends of the cast iron pipe coils, on either side of the door and also between the pipes in the center, have air chambers above the water line of the coils. They are our Patented Headers which automatically liberate the air from the system and so prevent its hindering a perfect and rapid circulation of the water.

The Heating

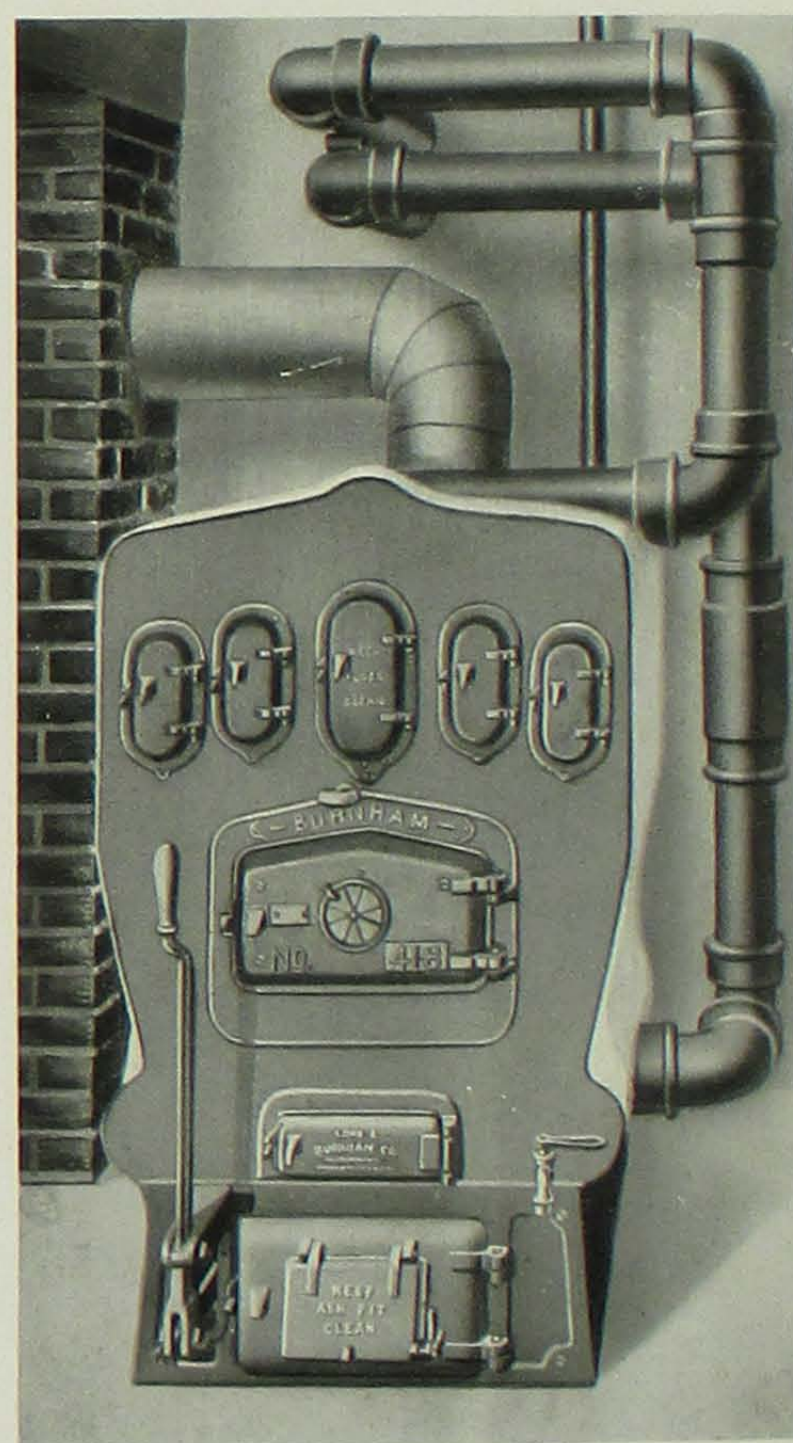


UPON the right installation of your heating plant depends much of the success of your greenhouse. Its perfection involves the right amount of radiating surface so distributed as to insure best growing conditions and the desired temperature in each compartment. In order to obtain these results, you must have a boiler of proper size and capacity; ample mains for carrying water to the coils; sufficient grade to insure rapid circulation and even distribution. The coils must be arranged to prevent all air locks, and so planned that the temperature in each compartment shall be under proper control.

On the face of it, these problems seem simple enough, but as greenhouse heating is different from any other, in that it is all longitudinal work, with but little altitude, the realization of its special requirements and the ability to meet them, only come through experience.

The fact that we have met and mastered these problems for more than fifty years is sufficient guarantee that we will give you a perfect working heating plant.

The hot water system of heating is preferred because of its capacity to hold the desired night temperatures without the expense of a night fireman. It gives a more equable heat than steam. The hot water pipes being run at a lower temperature, the heat is less intense and does not dry out or bake the soil in the benches as with steam.



Number 618—Burnham Square Sectional Greenhouse Boiler, set in the work room cellar. This is only one of our Burnham Series. We have a catalog showing them all, which we will be glad to send you.

THE BOILER

To meet the exacting demands of greenhouse heating, we make a special sectional boiler called the Burnham, which, because of its economy and ease of operation, has become the standard of greenhouse heating. Being made in sections, it can readily be enlarged at any time to take care of additions that may be made to the greenhouse.

To further insure its economy, the sides and top are carefully covered with asbestos cement, which being a non-conductor, prevents the radiation of the heat in the cellar.

Unless otherwise arranged for, the boiler is placed in the cellar under the work room and connected to the chimney by a galvanized smoke pipe.

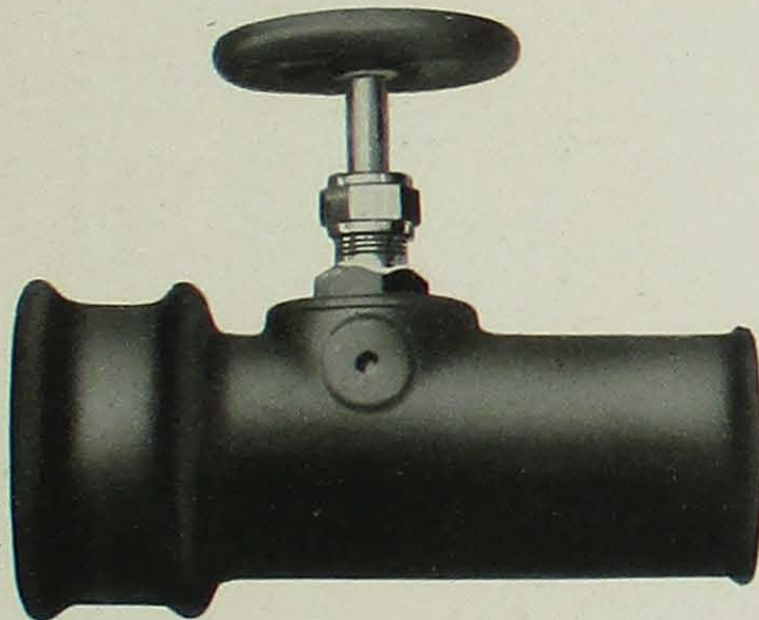
THE HEATING COILS

These consist of several 3½-inch cast iron pipes placed on cast iron pipe chairs under the benches, and coupled to the boiler by supply and return pipes, which we call mains. Our special automatic air vents or headers, as illustrated on this page, are placed wherever necessary to prevent air locks that otherwise retard or utterly check the circulation.

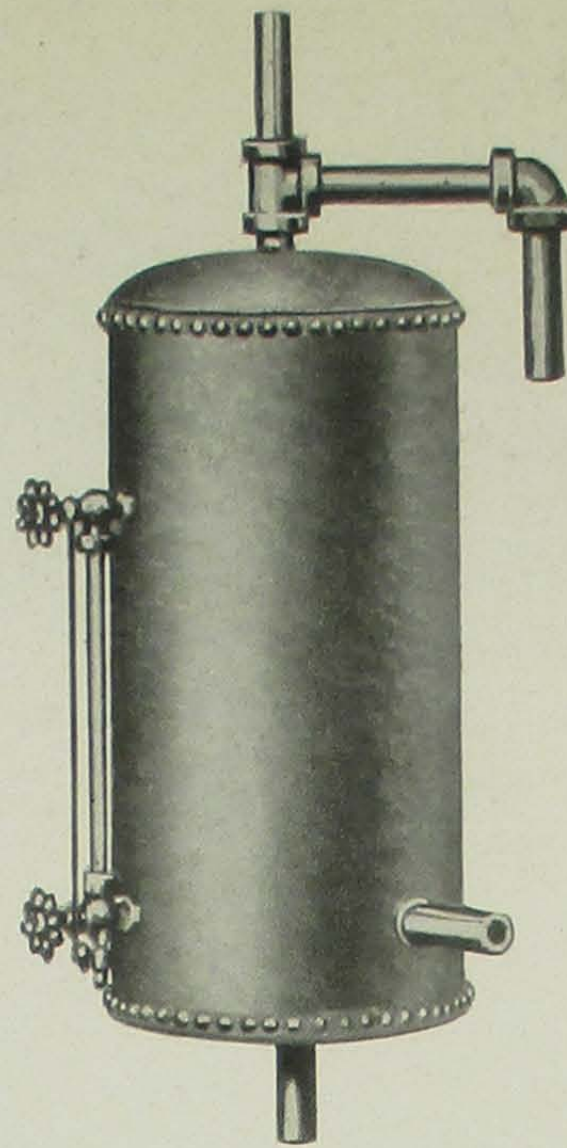
To control the temperature in the various compartments of the greenhouse, cast iron, brass mounted valves are placed between the supply pipes and the coils, thus controlling the circulation.

The joints between the various pipes and fittings are rust caulked which form a tight joint.

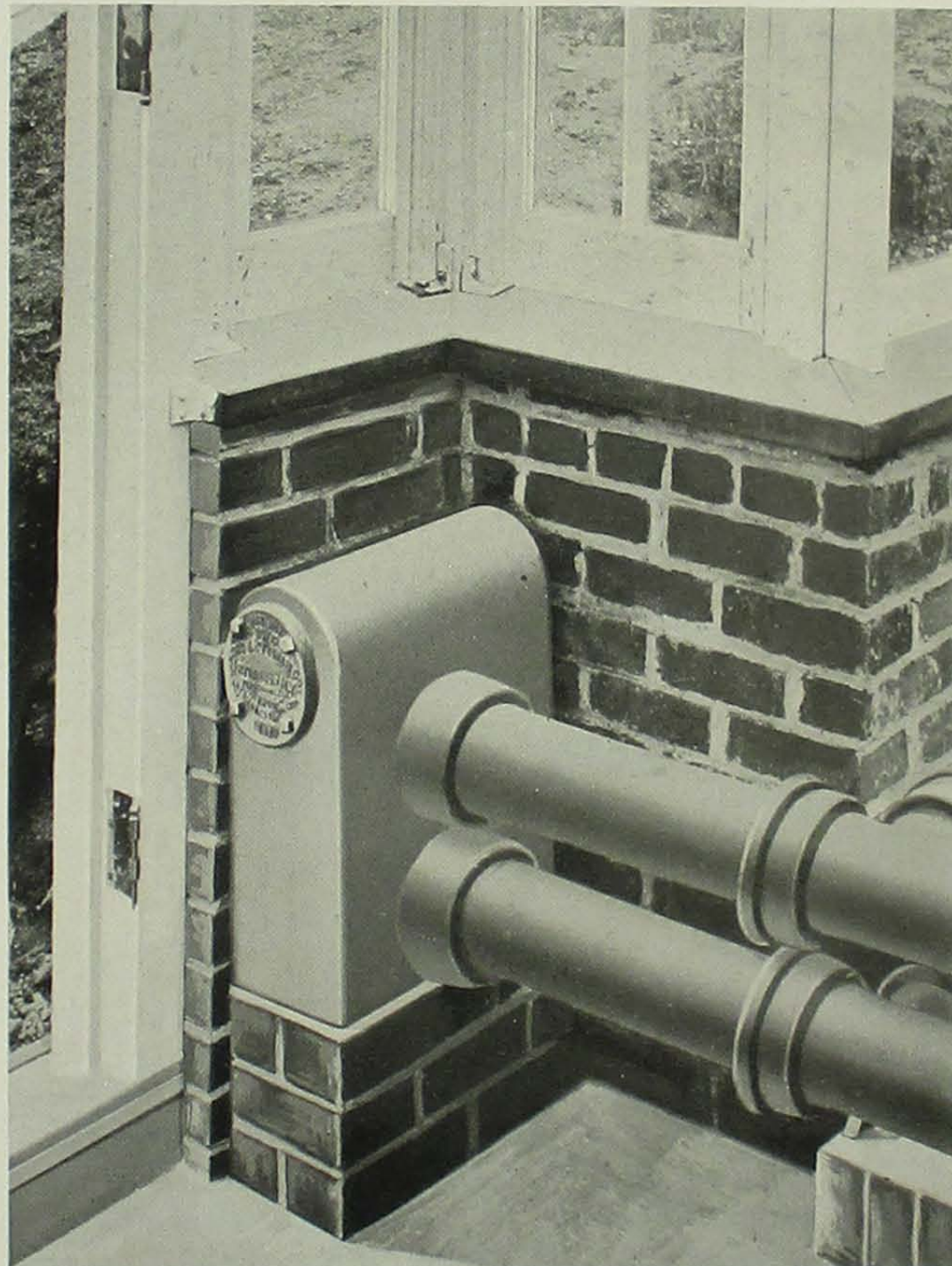
WITH PROPAGATING BEDS special coils, in addition to the regular heating coils, are used under the propagating beds to secure the temperature in the sand best suited for making rapid root growth.



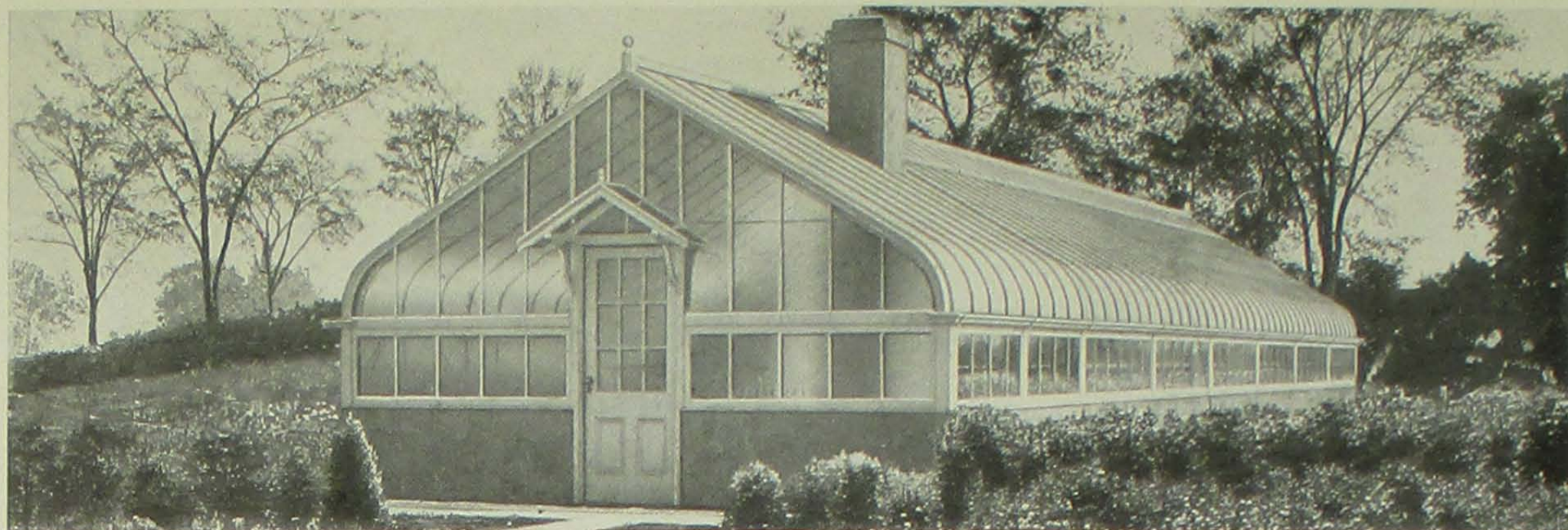
Number 619—One of our cast iron brass mounted valves which is used to control the supply of water to the coils in the various compartments.



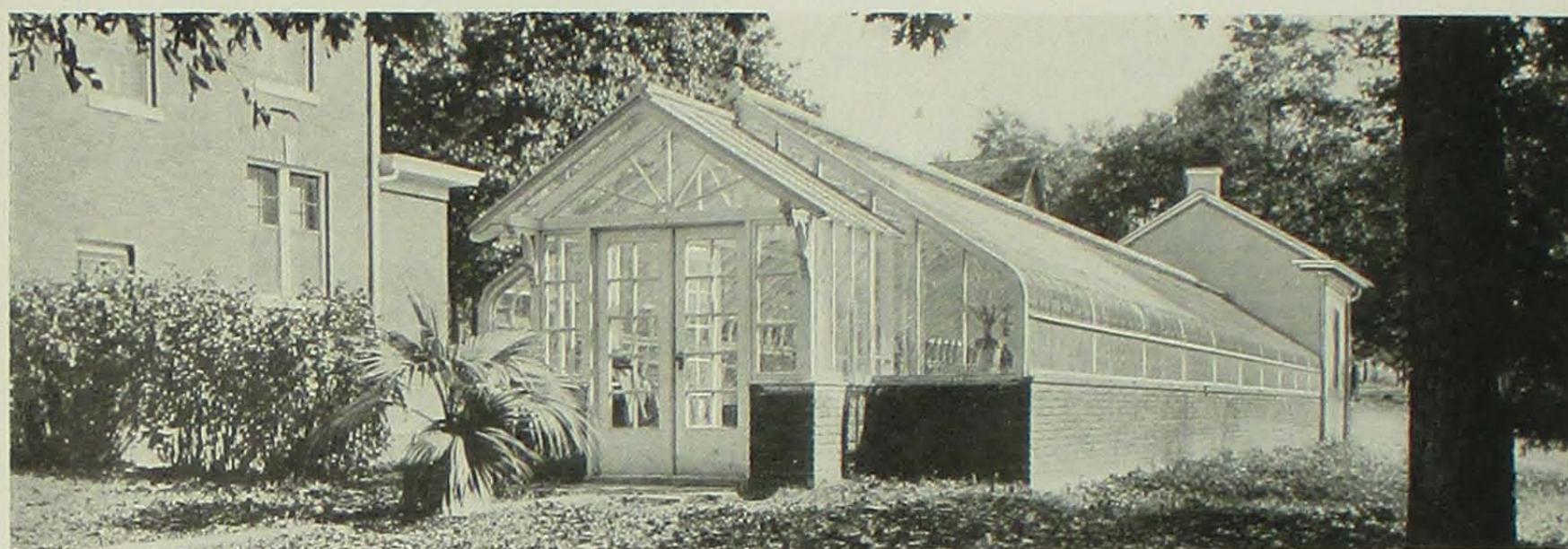
Number 620—This is our special galvanized iron Expansion Tank fitted with water gauge. It is placed in the work room high enough to bring the water line well above all heating pipes.



Number 621—Near-by view of our Patented Automatic Header for liberating the air from the heating coils.



Number 622—The Modified Curved Eave construction with its architectural line given by the ornamental moulded gutter, seems to us the most attractive. The side sash make perfect ventilating conditions possible.



Number 623—The uninterrupted sweep of the eave is practically unaffected by the angle vent construction, and the ventilation is the same as the one above.



Number 624—The Standard Curved Eave with the ventilation opening in the foundation wall.

Variant Eave Constructions

WE MAKE three distinct eave constructions. This briefly describes each in their order of preference.

1. *The Modified Curved Eave* which has the gutter at the base of the curve and the side ventilating sash hinged to it, giving ideal ventilating conditions, besides a high eave line for the taller plants grown on the side benches.

2. *The Angle Vent Curved Eave* which places the gutter on top of the foundation sill, and at the base of the eave curve runs an angle iron to which the vent sash are hinged, as to the gutter on the modified curved eave.

3. *The Standard Curved Eave* which places the gutter on the sill, and in place of the continuous side sash ventilation, single vents in the foundation wall are used.

Sections

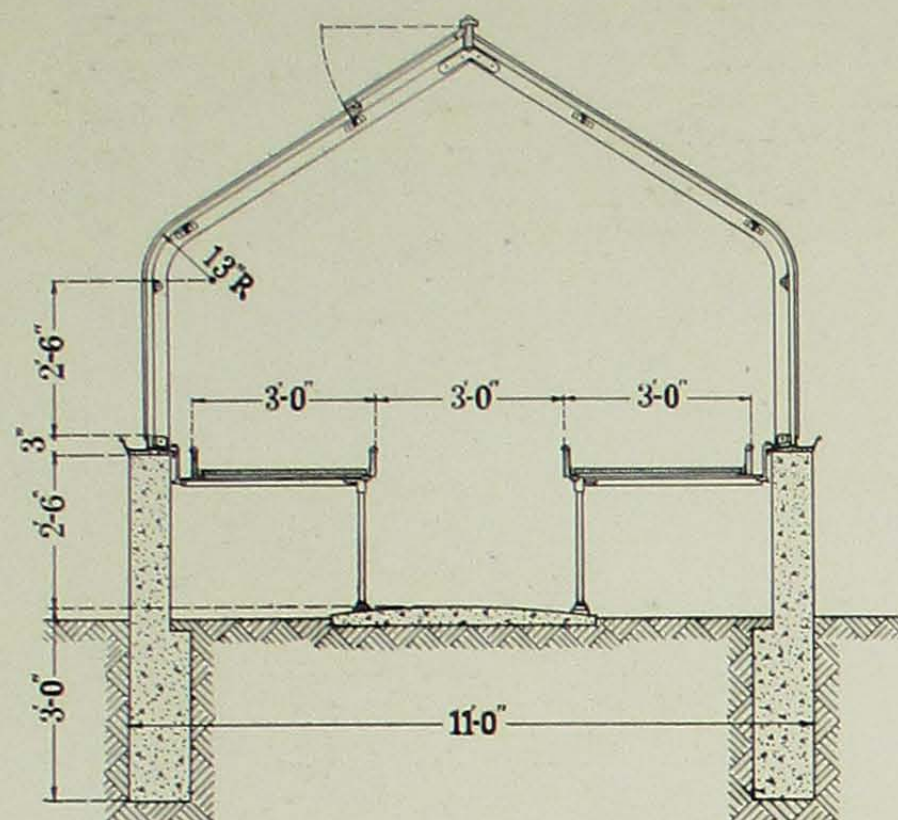
The following ten sections show the arrangement of walks and benches in houses of standard widths.

These widths are the ones which have proven to be the most satisfactory both from the point of economy and productiveness.

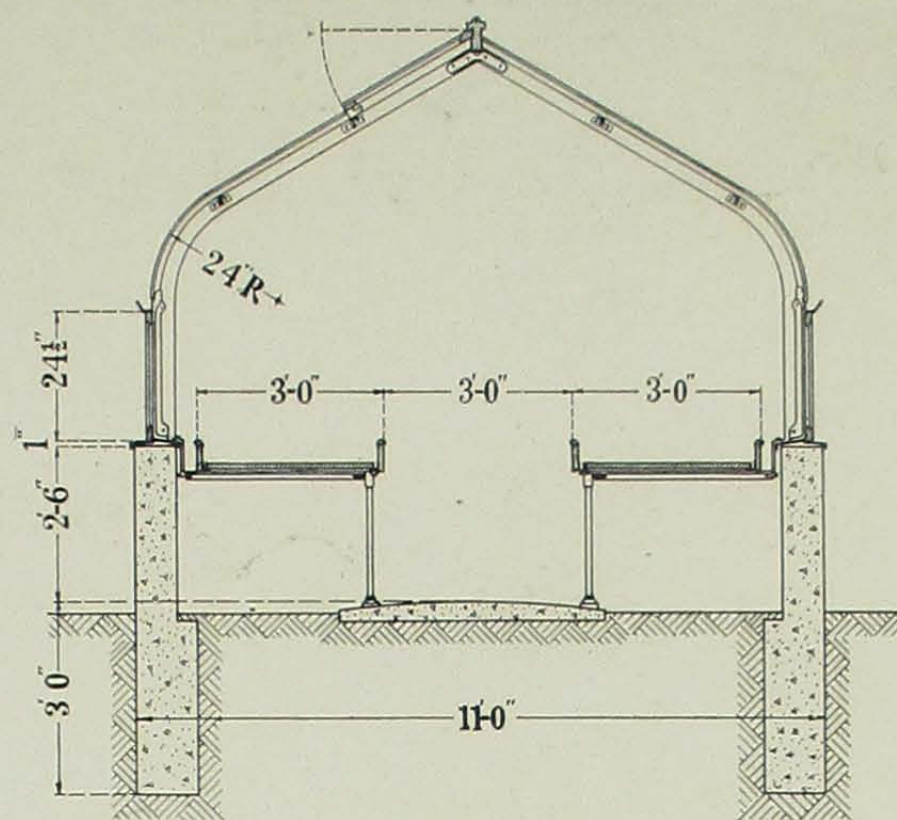
Do not infer, however, that we do not build other widths.

We are always ready to meet any special conditions with houses and widths best adapted to the purpose.

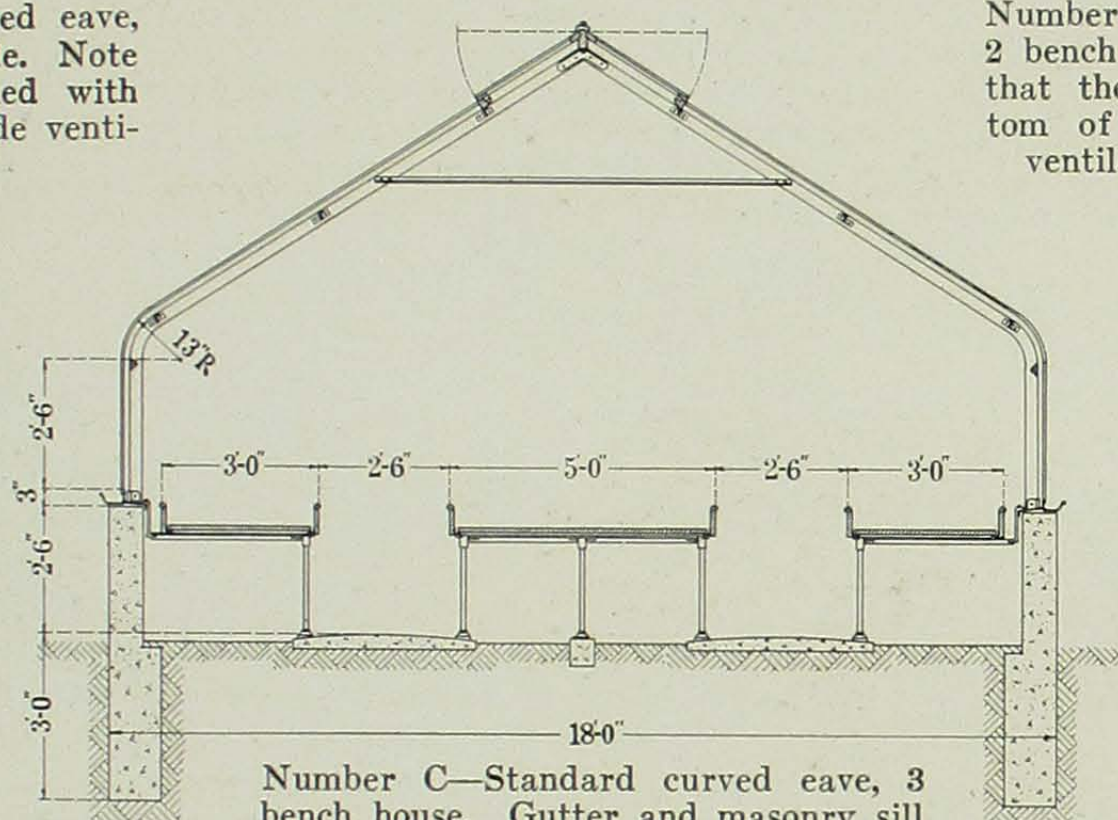
All houses shown, except the palm houses on pages 77 and 78, are equipped with bench Number 609 and table Number 605 shown on page 68. These are our standard equipment, unless otherwise desired.



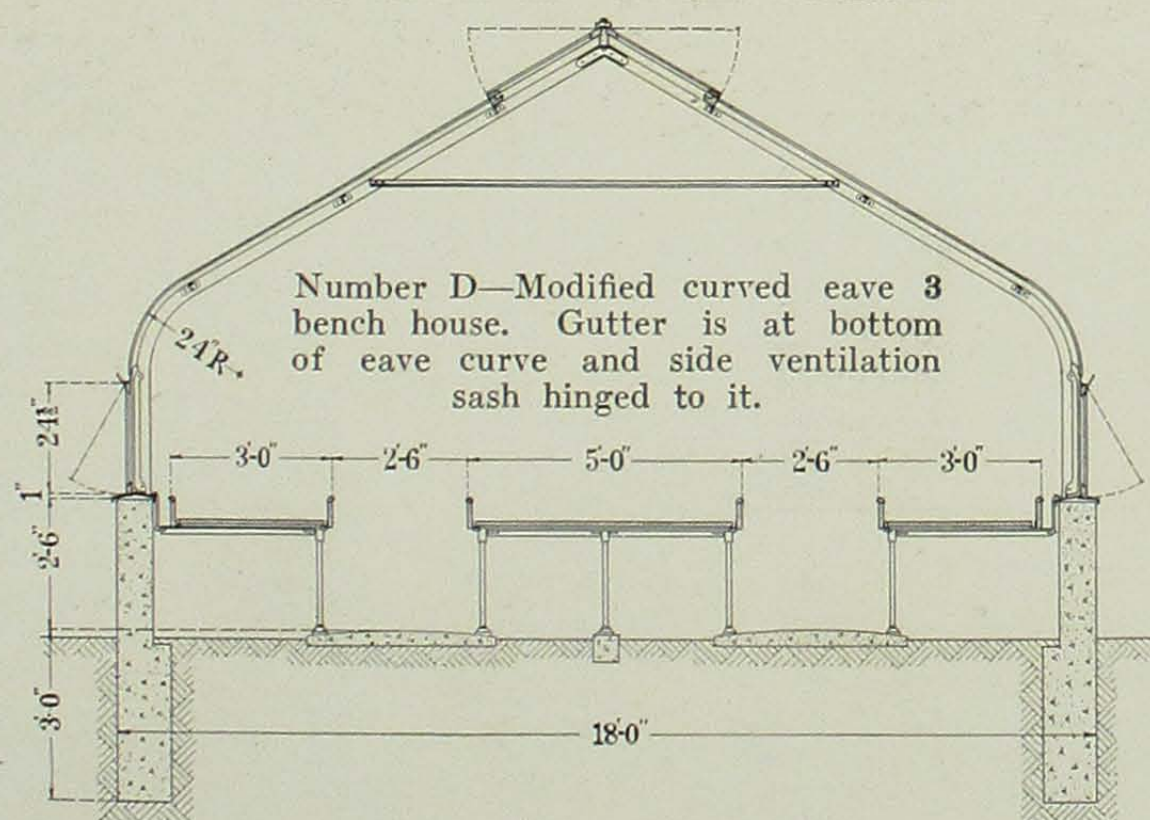
Number A—Standard curved eave, 2 bench house, 11 feet wide. Note that the gutter is combined with the sill at top of wall. Side ventilation not used.



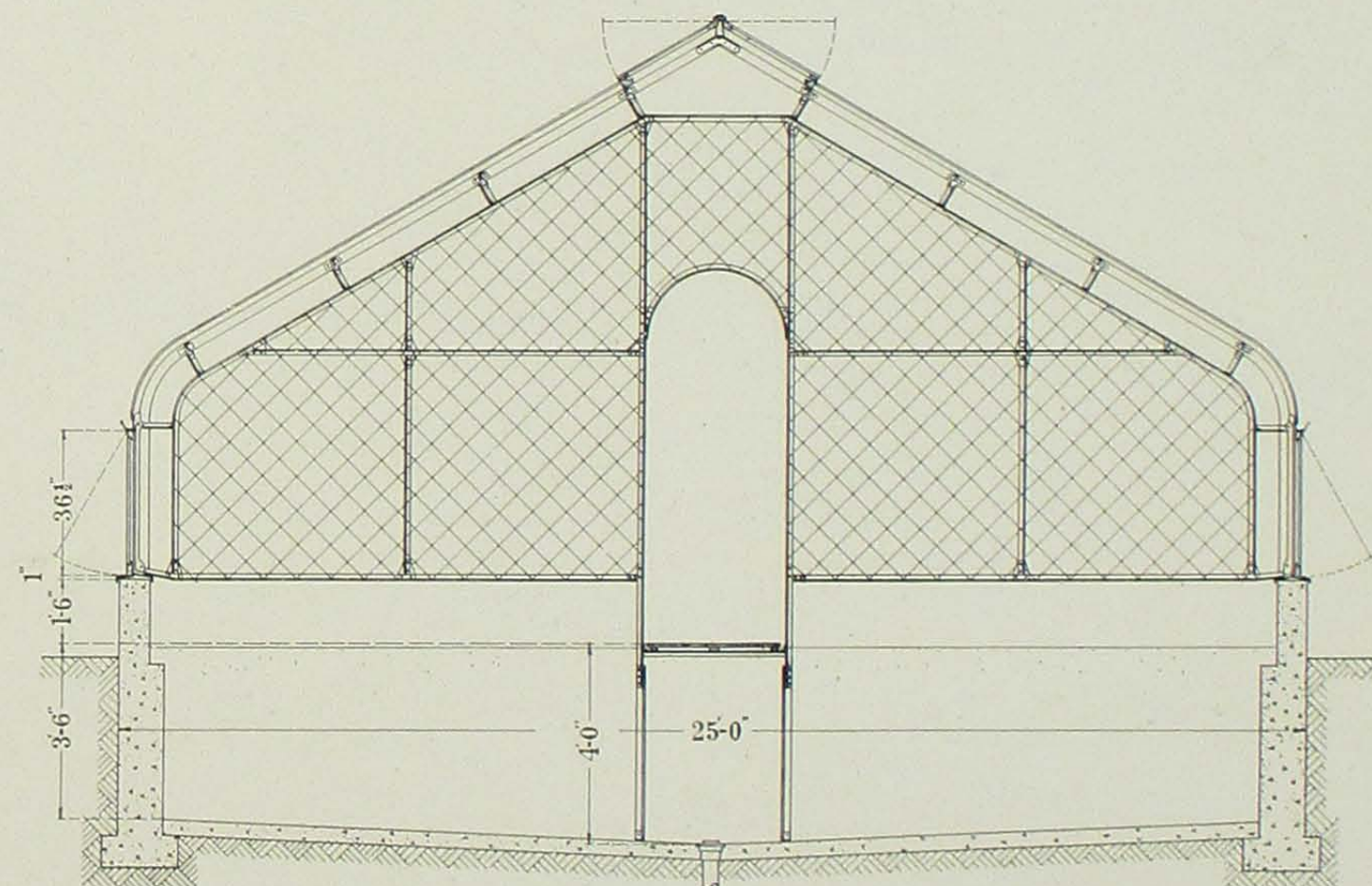
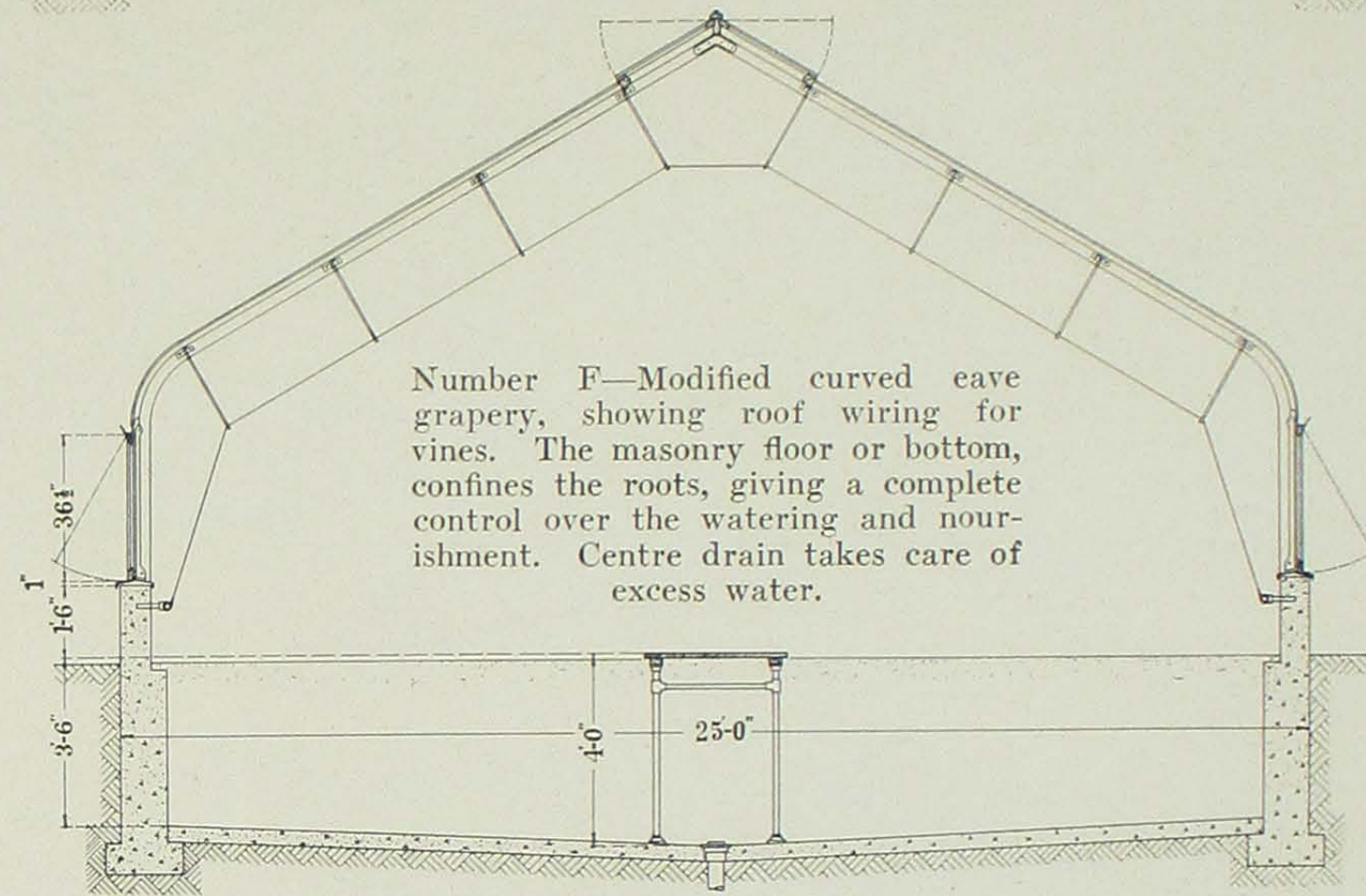
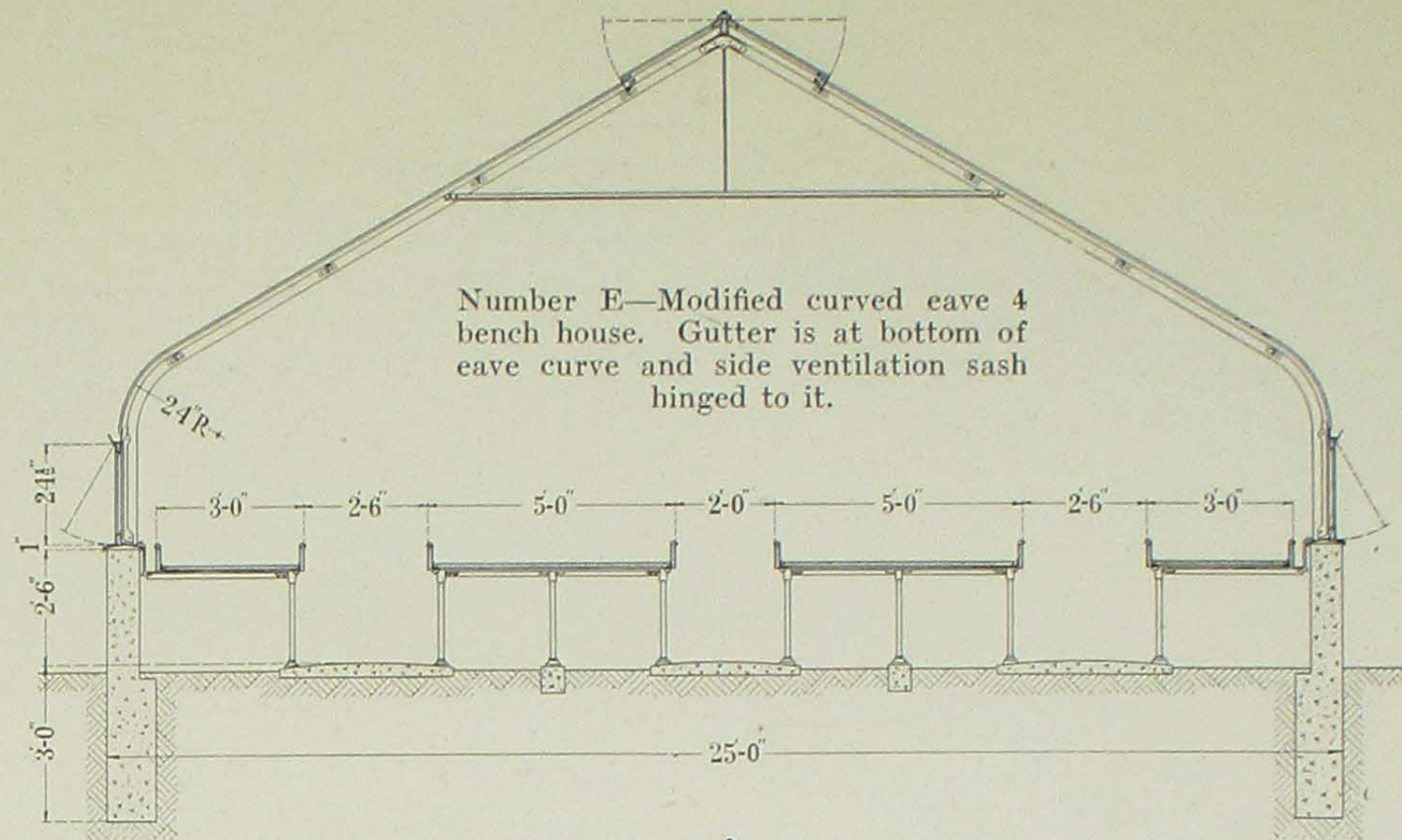
Number B—Modified curved eave, 2 bench house, 11 feet wide. Note that the gutter is placed at bottom of the eave curve and side ventilating sash hinged to it.

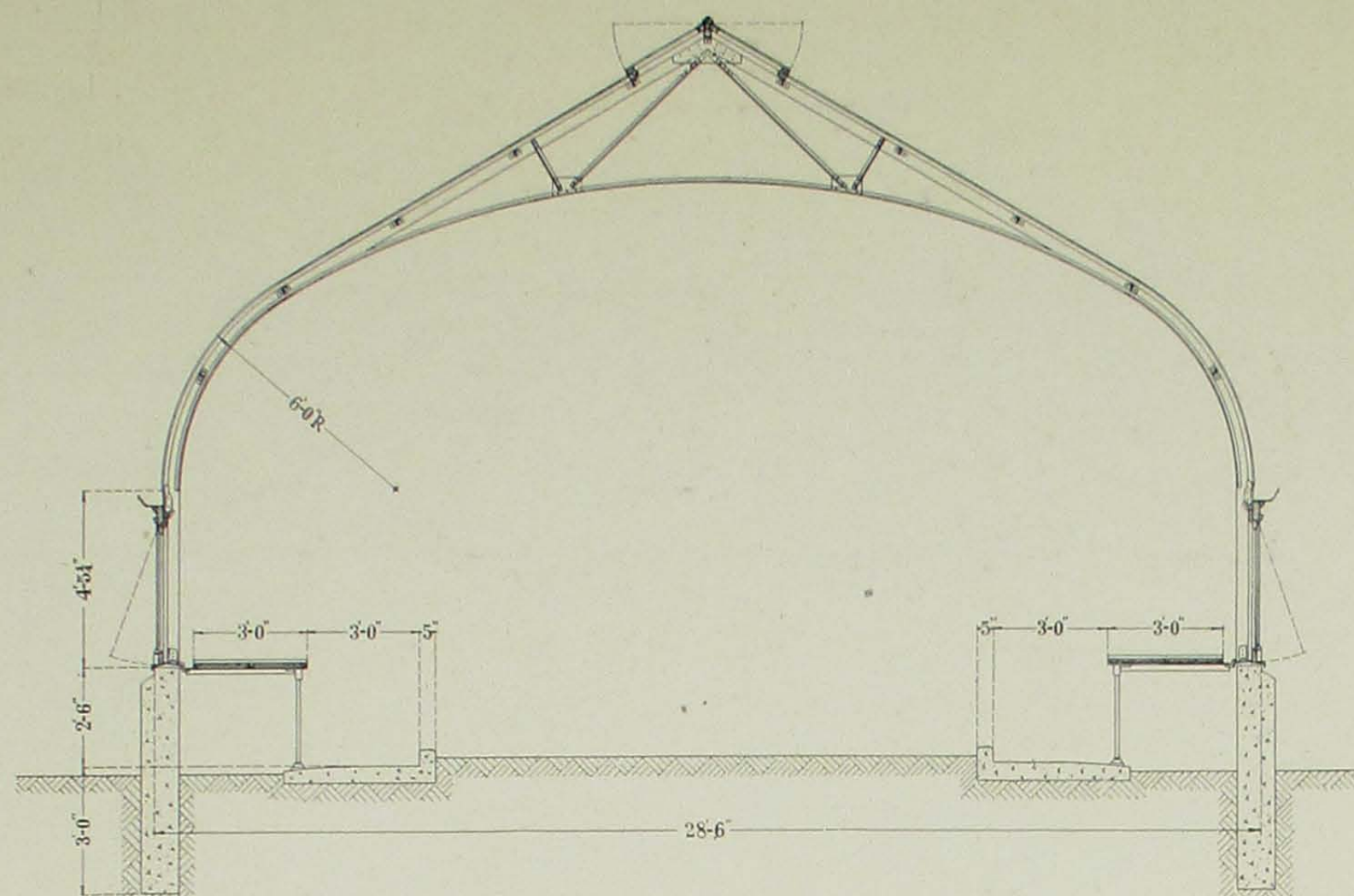


Number C—Standard curved eave, 3 bench house. Gutter and masonry sill combined in one. No side ventilation.

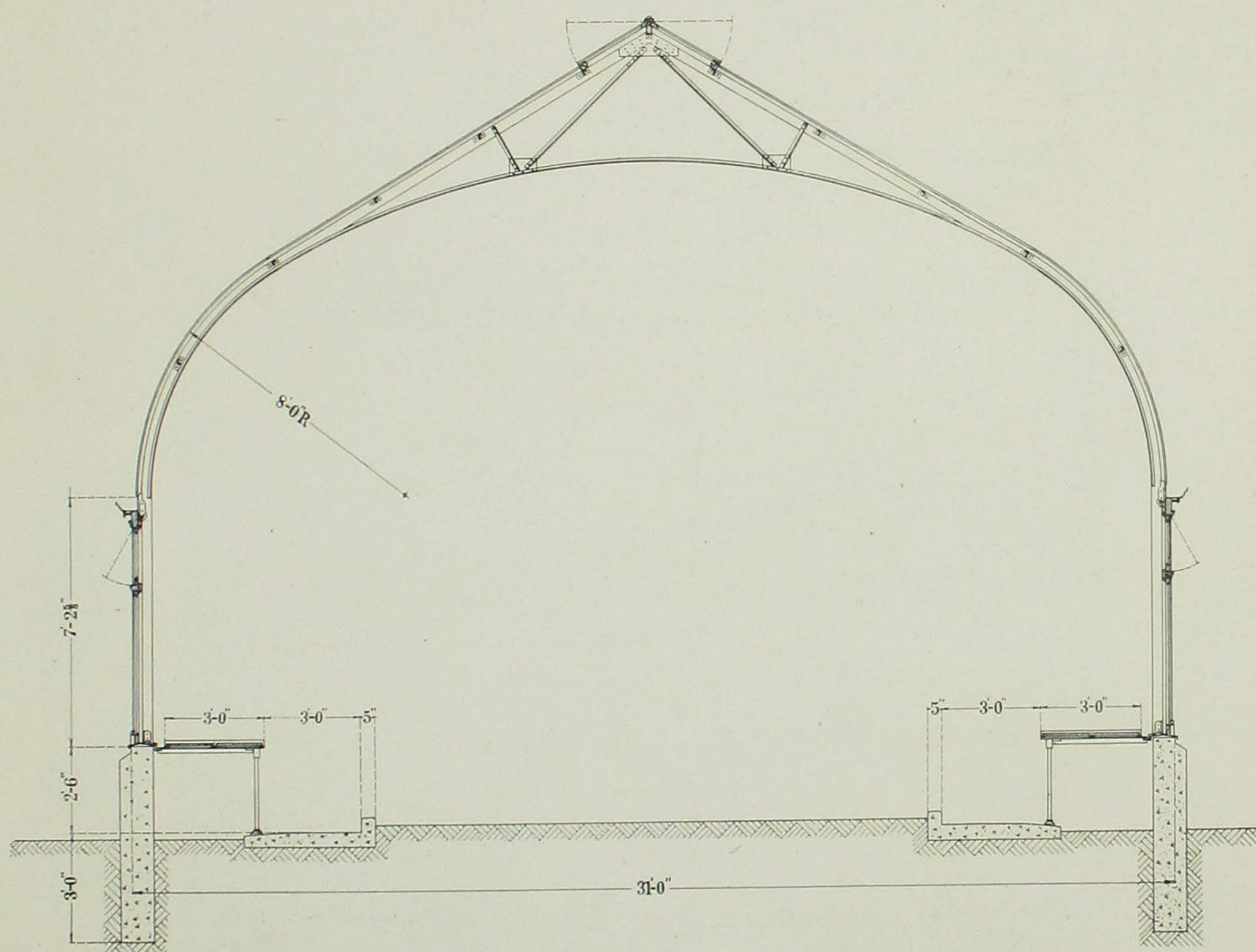


Number D—Modified curved eave 3 bench house. Gutter is at bottom of eave curve and side ventilation sash hinged to it.

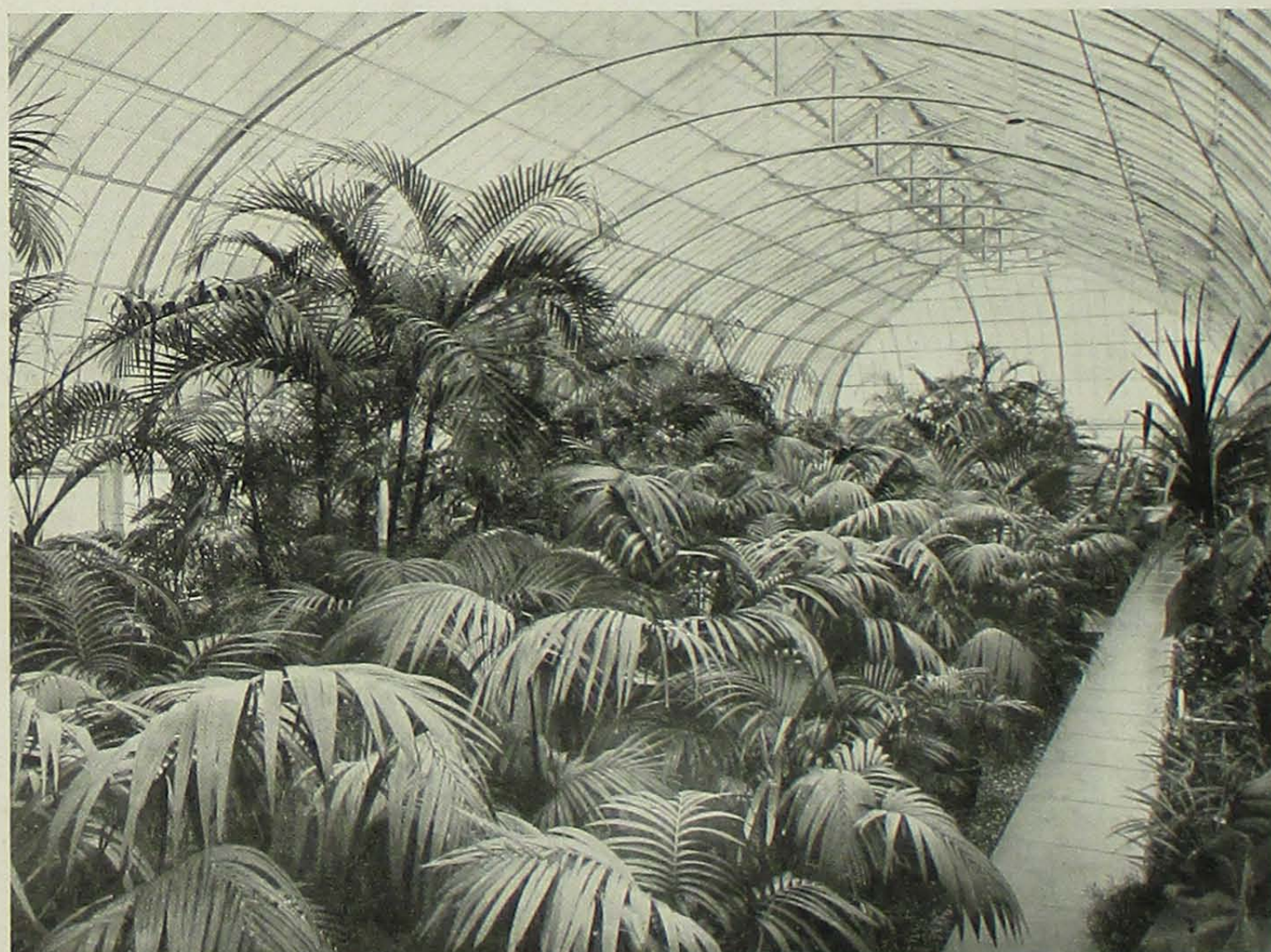
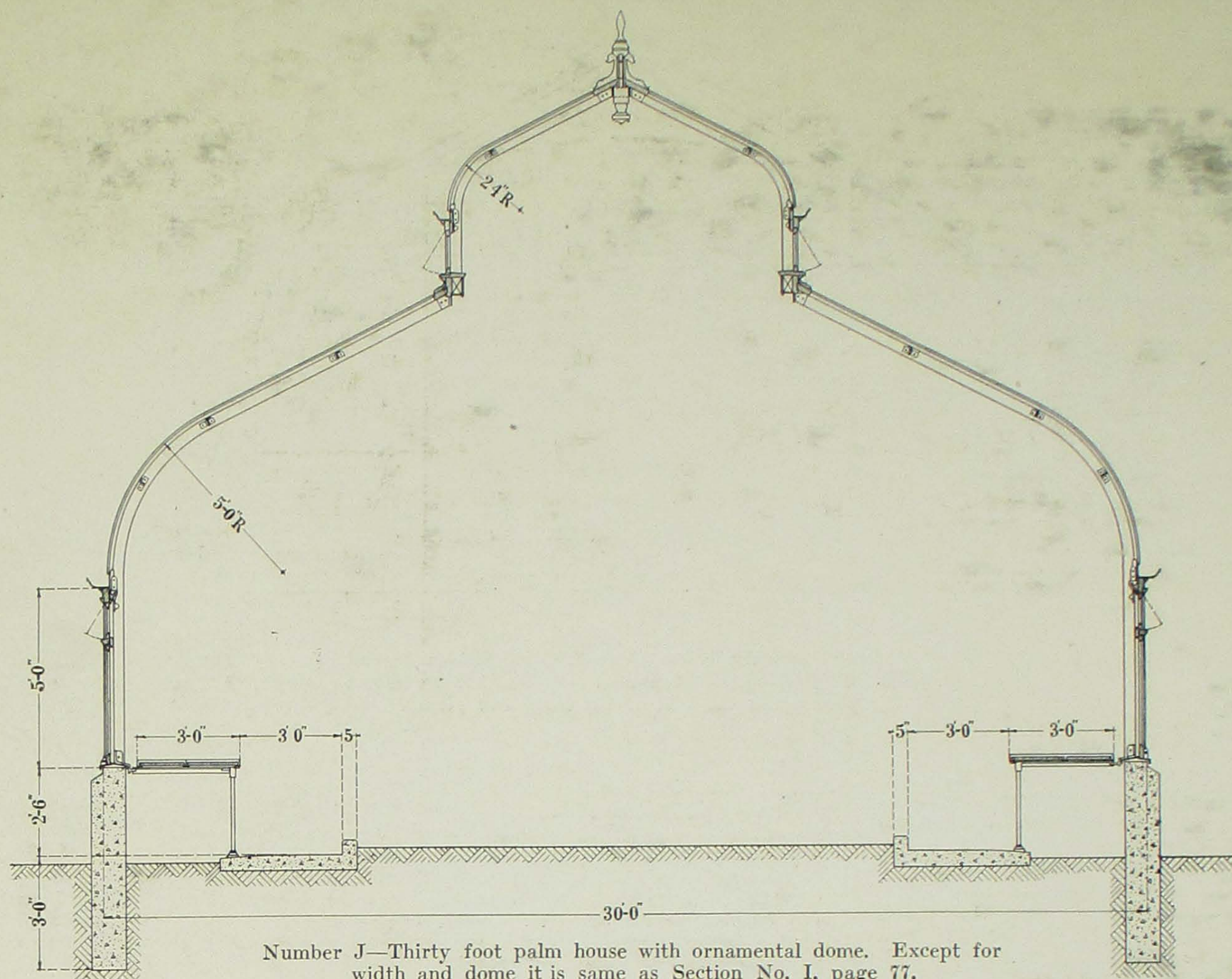




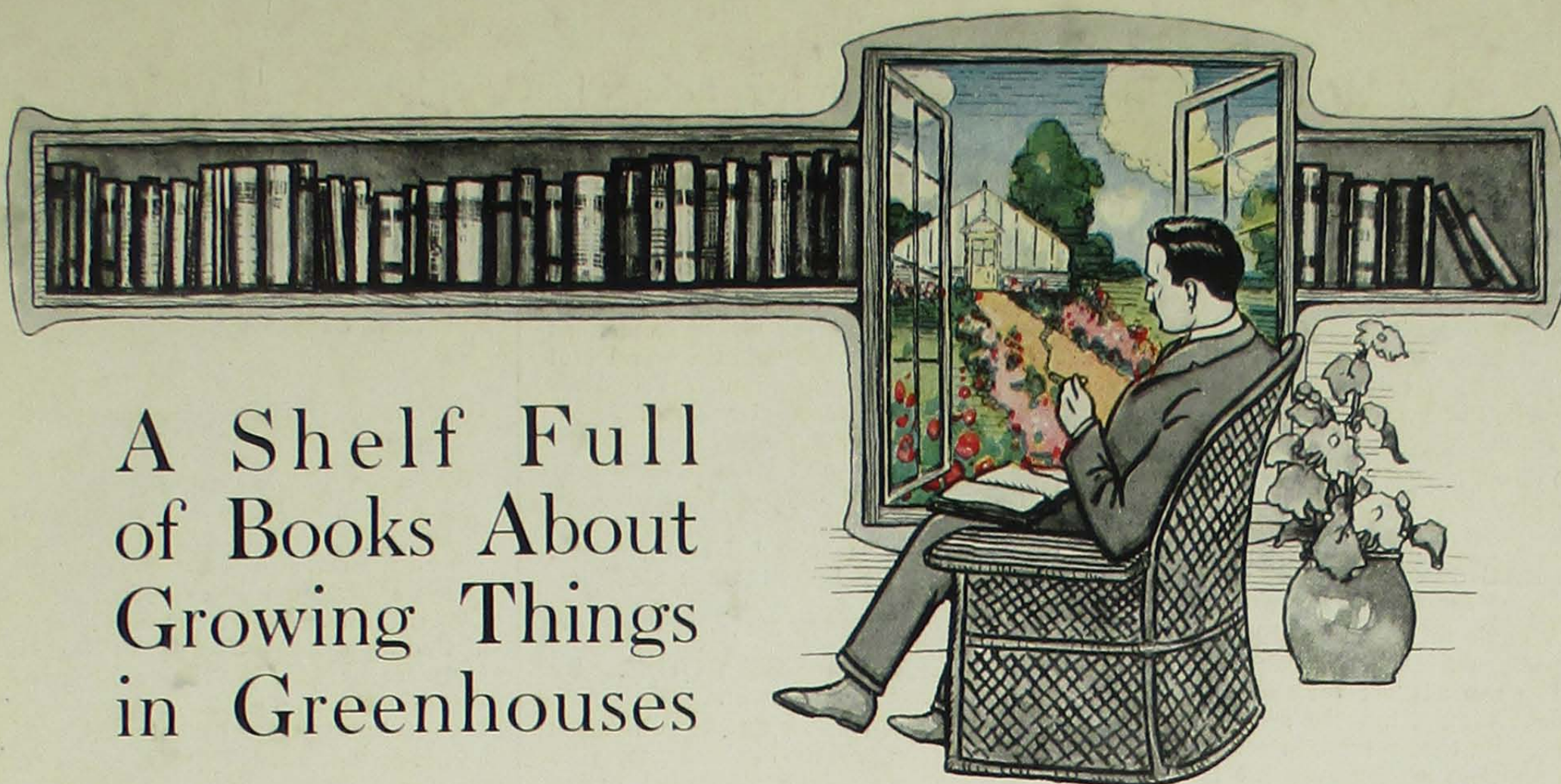
Number H—Palm house 25 feet wide. Tables around sides for holding potted plants. Centre open for direct planting in the soil, or for large tub plants.



Number I—This palm house 25 feet wide, differs from the one above only in having higher sides and a transom ventilating sash hinged to the gutter.



Glimpse in high sided palm house at Ogontz, Pa., on estate of the late P. A. B. Widener.



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